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CONTENTS

TEXT PP. 93-100 and IV.-XVI.

SUMMARY.
HEATING AND VENTILATION—IV.
THE MODERN FRENCH SCHOOL OF SCULPTURE—I.
THE PRAXITELEAN PHRYNE.
THE NEW BERLIN CATHEDRAL.
NOTES AND CLIPPINGS.
MISCELLANEOUS.

ILLUSTRATIONS.

NORTH AISLE, ROGERS MEMORIAL CHURCH, FAIRHAVEN, MASS.
TOWER VESTIBULE IN SAME CHURCH.
DOORWAY, BETWEEN SOUTH AISLE AND PORCH, SAME CHURCH.
U. S. POST OFFICE, ELIZABETH, N. C.
U. S. POST OFFICE, NATCHITOCHES, LA.
ST. PAUL'S CHAPEL FOR COLUMBIA UNIVERSITY, NEW YORK.
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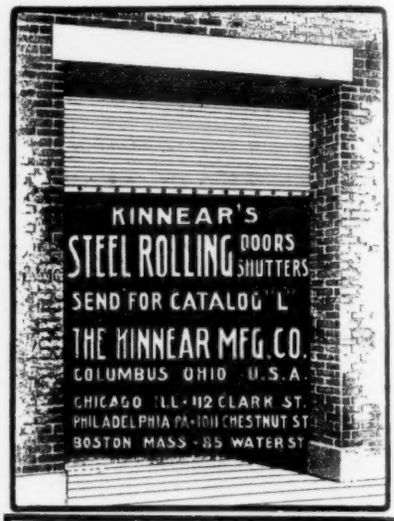

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Alphabetical List of Advertisers.

(For Classified List see Page 18.)

A

American Asphaltum & Rubber Co..x
American Mason Safety Tread Co..xii
American Sheet and Tin Plate Co. e-o-w, xiii
Andrews, A. H., Co. x
Architect and Contract Reporter.....ii
Art Metal Construction Co.....x
Associated Expanded Metal Co.....xvi
Atlas Portland Cement Co..o-a-m, xix

B

Barrett Mfg. Co..... vi
Batchelder & Co., C. H.....xvii
Benedict & Burnham Mfg. Co. e-o-w, xix
Berger Mfg. Co.....iv
Building News. xi
Butcher Polish Co.....e-o-w, ix

C

Cairns, Hugh.....xvii
Campbell, Walter M.....xii
Chicago & Alton Ry.....xviii
Craig, David .....e-o-w, xvii
Crane Co.....ix
Cudell, F. E.....e-o-w, xvii
Cummings Filter Co.....ix
Cutler Mfg. Co. vii

D

Dadmun Leon E.....xvii
Deane, E. Eldon.....xii
Dixon Crucible Co., Jos.....ix

E

Elevator Supply and Repair Co.....iii
Elston, A. A.....xvii
Erickson Electric Equipment Co...xvii

F

Fisher Co., Robert C.....iii
French & Co., Samuel H.....ix
Frink, I. P.....ii

G

Gilbreth, Frank B.....xvii
Gilbreth Seam-face Granite Co....xvii
Globe Ventilator Co.....xix
Goerz, C. P.....v
Guastavino, R., Co.....o-a-m, xiii
Gurney Heater Mfg. Co.....xx

H

Hartmann Bros. Mfg. Co.....xiii
Harvard University.....iii
Hayes, Geo.....v

I

Illinois Steel Co.....xx
Imperial Expanded Metal Co.....xvii

J

Jackson & Co., Wm. H.....xx
Jenkins Bros.....x
Johnson & Co., H. A.....xvii
Jones, T. W.....e-o-w, v

K

Kinnear Mfg. Co., The.....ii

L

Lane, John vi
Lawrence Scientific School.....iii
Loomis-Manning Filter Co.....iii
Lord & Burnham Co.....v

M

Mass. Institute of Technology.....iii
Miller & Bro., James A.....v
Morrill & Whiton Construction Co..xvii
Morrill, E. I.....xii
Moss, Chas. E.....xvii
Mott, J. L.....xvi

N

National Fireproofing Co.....v
Neuchatel Asphalt Co.....x
New England Tank and Tower Co. e-o-w, xvii
New Jersey Zinc Co.....o-a-m, ix
New York Belting & Packing Co. e-o-w, xi
New York Metal Ceiling Co.....iv
Northwestern Terra Cotta Co.....xii

O

Ohio State University.....iii
Okonite Co. (Ltd.).....e-o-w, iv

P

Philips, A. J., Co.....iv
Pratt Institute iii

R

Richey, Browne & Donald.....x
Rider-Ericsson Engine Co.....xvii
Rutan, W. L.....xvii

S

Samson Cordage Works.....e-o-w, x
Shirley Radiator Co.....xii
Silver Lake Co.....xvii
Simpson Bros. Corporation.....xvii
Sleep, Elliot & King Co.....xvii
Smith & Co., Edward.....iii
Smith Co., H. B.....e-o-w, xvi
Society of Beaux-Arts Architects....iii
Spaulding Print Paper Co.....xvi
Standard Fire-escape & Mfg. Co....xvii
Standard Sanitary Mfg. Co....e-o-w, iv
Sturtevant Co., B. F.....xi

T

Taylor Co., N. & G.....e-o-w, vii
Taylor, J. W.....xii
Thorn, J. S. Co.....e-o-w, v
Troy Laundry Machinery Co.....xx
Truss Metal Lath Co.....xvii

U

University of Pennsylvania.....iii
United States Foundry and Sales Co.xv
U. S. Mineral Wool Co.....v

V

Valle & Young.....xi

W

Warren Chemical & Mfg. Co. x
Washington University.....iii
Williams, John xiii
Winslow Bros. Co., The.....xix
Wister, L. & R., & Co.....o-a-m, viii

Y

Yale & Towne Mfg. Co. xiii

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WOOD OIL AND WOOD-OIL TREE OF CHINA.

It seems worth while to add to what we said about wood oil a week or two ago some further information that has just come to hand in the shape of a report from Mr. S. S. Wilcox, United States Consul-General at Hankau, China.

The oil from the nuts of the tung shu tree (best known to foreigners as wood oil or nut oil) has within the past six years become one of the chief articles of export from Hankau to the United States. Reference was made to its value and uses in the annual report of this consulate, published in the Commercial Relations of the United States, 1899, and since then from all parts of the United States; also from Canada, Africa and Europe inquiries have been received as to where the oil can be procured, how the trees can be grown, etc. I have endeavored to collect information on the subject by sending out a list of questions to Americans in the different provinces in central China. They have kindly given me the facts they could obtain, and I have also received valuable information from Rev. J. S. Adams, from native merchants, and from exporters.

The tung shu, or wood oil, tree has been styled, and worthily so, "the national tree of China," because of its stately appearance, with its green, smooth bark and spreading branches, which make it one of the finest of shade trees. It has many local names throughout the provinces in which it grows, but it is agreed generally that it belongs to the family of Euphorbiacæ. Doctor Legge calls it *Elæococoa dryandra;* Doctor Williams, in his dictionary, speaks of it as *Elæococoa sinensis;* Henry calls it the *Paulounia imperialis;* Thunbery and Bertschneider call it the *Dryandra cordata;* and Doctor Barchet says the oil is from the seeds of the *Elæococoa* and *Jatropha* trees.

The tung shu flourishes more or less in every province in the Yangste Valley. It extends from latitude 25° to 34° north, and from the coast to near the western part of the province of Szechuen, including an area of over 750,000 square miles, or over 600 miles north and south, and 1,250 miles east and west. While it grows as far north as 34°, and perhaps farther, the trees growing in the places that I have heard from in these higher latitudes are sheltered by mountain ranges on the north, so that it is hardly probable that the tung shu would bear nuts farther north in the United States than northern Georgia or Alabama unless under favorable conditions. Some say the tree will flourish in a climate 20° above zero and will not be injured after the first year, but it will not bear nuts.

Seeds of the wood-oil tree have been sent to central California and have grown well, but others planted at South Bend, Ind., have not sprouted, possibly due to defective seed. The tree might grow in Indiana, but would probably fail to produce nuts. Two hundred pounds of fresh seed are contracted for and will be sent from here in February to the Department of Agriculture. It is hoped that the experience gained in planting them in various parts of the United States will assist very materially in deciding what localities are best adapted for the growth of the tree. No degree of heat in this climate injures it. It is deciduous, shedding in October and November its leaves, which are very large and cordate in shape. The tree blossoms in March, the flowers being red, white, or purple.

There are several varieties of wood-oil trees in China, but the tung shu appears to be the only one known in many localities, and from the best information I can obtain most of the wood oil exported is produced from its seeds. Other varieties are: Tung yio; the tsi tree, yielding oil from wood, bark and nut; the muh oil tree, flourishing best along streams; the chow oz shoo, limited to good soil, and having

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a white flower; hai tung, or sea oil, a spinous variety, the bark of which is used for medicine; ts'ing tung, or green wood-oil tree; peh tung, or white wood-oil tree; chi tung, or red wood-oil tree; wu tung, a local name; yin tung, or oil tree, and pai yu. Mr. Kilen informs me there are five varieties of wood-oil tree, namely, mu-tsi shu, trou-tsi shu, tung-tai shu, whang-min-si shu, and tong-tsi shu, in the northwestern portion of this province (Hupeh). The oil of the tong-tsi shu is used in paints and is burned in candles and lamps. The color of the flowers and not of the oil is referred to in the names given. As nearly every locality uses different terms for the varieties, it is difficult to learn anything definite regarding their properties from the natives.

The most frequent way of producing trees is to plant the seed in boxes or garden beds. When the shoots are about a foot high they are transplanted, as a rule, in clayey or gravelly soil on some hillside, along the edges of a road, in cultivated land or pasture, or as shade trees on waste land. At first when transplanted the roots are kept moist until they have well started to grow, after which little attention is demanded. The tree is never budded or grafted. One of my informants says the sprout is grown by pulling or cutting off the tree a twig, the large end of which is curled up and set in any kind of sandy or clayey soil and surrounded by wheat grains watered plentifully and let grow for a year. The shoot is then cut off above the ground and a large sprout springs out and grows very rapidly. If kept constantly moist at the roots and well pruned, it will grow 10 feet in one season, and in five years will have grown to be a handsome shade tree. When not watered it grows more slowly. Other crops are not planted between rows of the trees. After beginning to bear they appear to stand the drought of the hot summers without injury.

The age when the tree begins to bear depends to a considerable extent on the richness of the soil and the amount of moisture it receives the first few years after planting. In some localities it produces fruit in three years, usually from the fourth to the sixth year. The tree continues to bear for about ten years, and if properly attended to and pruned would no doubt retain its productive powers for a longer period.

On the tree the fruit, about the size of a small orange, resembles large shellbark hickory nuts, and when ripe the hulls, which have five segments, burst open, especially if there is a frost, and one or more of the seeds fall out. The husk has three fibrous partitions, each containing a seed which resembles somewhat the triangular Brazil nut in shape and color, but is much smaller. The shell of the seed is slightly thinner and the meat is similar to that of the Brazil nut. When gathered and dried the nuts are put in large iron pans, called kwoo, about 2 feet in diameter, and are stirred about over a good fire until parched. This causes the husks to open and the seeds are easily extracted, after which they are ground into a fine meal by hand or by rollers. As I am informed, the usual way of doing this is as follows: The nuts are placed in a stone trough, built in sections, several feet in diameter, and are ground by a heavy stone roller, turned by a buffalo, cow, or ass. The meal is then collected and put into a press, somewhat similar to the old-fashioned cider press, wedges being driven in to increase the power and heavy stones piled on top to make the press more effective.

The oil is collected in vessels, is heated (if the weather is cold it thickens or congeals), and after being freed from sediment by straining through coarse grass cloth is ready for market. Steaming the meal is practiced by the natives in order to extract the liquid more easily. The oil is of a light straw color; it becomes dark brown if boiled, and if the process is continued becomes black and as thick as New Orleans molasses. Obtaining the oil could be greatly facilitated by the use of proper machinery. The commodity is brought from the interior in plaited baskets, which are lined with putty and varnished paper.

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and have large wide mouths and four loops plaited in the bamboo. The oil is extremely poisonous when fresh. A simple native remedy for persons poisoned by it is to boil a quantity of pine shavings in water and bathe the poisoned parts repeatedly. This gives immediate relief and a rapid cure. Wood-oil poisoning is worthy of special study.

The refuse of the nut is used as a fertilizer, or after the oil is extracted the meal is burned to a fine ash or soot, which is mixed with wood oil to make a paste or chuman, used as a kind of cement for calking native boats, especially the decks; it is also commonly used in preparing floors for the first coat of paint. So-called Chinese or India ink is made from the soot. In the west of China (Szechuen, Kueichau, Yunnan) the people spin thread from the fiber of the tung tree and make a kind of fabric that resembles woolen cloth. It is very common in central China and is also well known in Japan. There is also a kind of bastard wood-oil tree from which strings can be made, probably *Sterculia plantanifolia* (Henry).

Wood-oil trees average only about 20 feet in height and 7 to 10 inches in diameter, though some are said to reach a diamter of 2 feet. The scarcity of timber in China necessitates their use, the lumber being handsawed. The latter is light, soft, and smooth-grained when first cut, but when seasoned is hard and durable. The wood is white, impervious to moisture, and is not liable to warp or crack, even when exposed to intense heat. It is used in the manufacture of musical instruments, trunks, oven covers, fine boxes, etc., and also for the framework of small Chinese houses. It is said that insects avoid this wood, and that for that reason it is very valuable in China, where white ants and other insects destroy woodwork often in a very short time.

The light straw-colored or light-yellow oil is the only kind that has been exported from this market to any extent; but the two other grades, the brownish-colored oil and the black oil, are used quite extensively in some localities here. The oil is used in polishing the woodwork on native boats of all kinds, as they are not painted. It is a preservative, giving the wood a bright, clean, light-yellow appearance and making it impervious to moisture. The oil mixed with quicklime makes a very good glaziers' putty, used extensively by the natives. It is used as a dressing for leather, and in lamps, but not nearly so much as the peanut or tea oil. It is also used as a varnish for fine furniture and for soap making, and is mixed with color for various kinds of painting.

The oil is finding a ready market in the United States, and no doubt experience will prove it to be useful in many other lines than those mentioned.

The yield of nuts varies from 20 to 50 pounds to the tree. The oil yield of the nut is about 40 per cent. This amount is given in a number of reports from widely separated districts. I received from Rev. George J. Marshal, of Kanchan, Kiangsi Province, a few days since, a few seeds of a wood-oil tree called in that locality the muh in. He states that the natives consider the seed of this tree the best for oil making, and thinks it could be profitably raised in the United States on waste lands. The seeds of this tree are about two-fifths as large as those of the tung shu tree.

The price of wood oil per picul (133⅓ pounds) in this market varies somewhat, due to the fluctuation in silver and also to supply and demand. The past year it has ranged from 7.75 to 8 taels (about 3⅞ to 4 cents) per pound.

The oil is shipped in casks or barrels from Hankau to Shanghai, where it is transshipped on ocean steamers, via Suez, to the United States. As very few casks or barrels are made in China, there has been a great deal of leakage in shipping in old second-hand barrels imported into China containing other merchandise. During the past three years some parties have imported from the United States shooks and machinery for setting them up into casks. One or two other firms in this district have started barrel or cask factories, but so far the output has been small. No doubt time will remedy this want.

The rate of freight at present is 47s. 6d. ($11.56) per ton (2,240 pounds), gross weight to New York. The tare amounts to about one-seventh of the gross weight. There is a rebate of 5 per cent. per conference steamers six months hence, and an additional 5 per cent. after a further six months, provided the shipper has not shipped by any steamer outside the conference in the meantime. All the New York via Suez steamers now are included in the conference.

Hankau, China, December 28, 1904.

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NOTES AND CLIPPINGS.

THE TEMPERING OF BRONZE.

M. Leon Guillet has lately made some experiments as to the effect of tempering upon bronzes. It is known that some kinds of bronze are softened by tempering. On the other hand, M. Riche showed that bronzes which contain a considerable proportion of tin, fifteen to twenty per cent., are malleable when hot, while they are brittle when cold. The experimenter wished to find the influence of tempering upon the mechanical properties, using different specimens of metal. To carry this out he submitted bronzes having from 5 to 21 per cent. of tin to a tempering which varied in different cases from 300 to 800 degrees C. He draws the following conclusions from these tests:

1. Alloys containing more than 92 per cent. copper have their breaking strain increased somewhat by tempering at a low temperature between 400 and 600 degrees. The elongation varies in about the same way.

2. For metals containing less than 92 per cent. copper, the breaking strain and elongation increase in marked degree when the temperature of the tempering exceeds 500 degrees. The maximum breaking strain is reached for all the specimens for a tempering carried out at about 600 degrees. On the contrary, the maximum of the elongation seems to vary with the composition of the alloy. It occurs at a tempering of 800 degrees for the bronze containing 81 per cent. copper and 19 tin, and at 600 degrees for 79 copper and 21 tin.

The difference between the breaking strain of the non-tempered cast metal and the pieces which are tempered at the most favorable temperature is greater according as the proportion of copper is smaller. In general it is to be concluded that the tempering of bronze between 600 and 800 degrees C. brings about much better results as to traction tests. As to the resistance to friction, the effect is to be studied in the further experiments.—*Scientific American.*

MINNESOTA TREE-PLANTING BOUNTIES.—Ever since 1873 the State of Minnesota has annually paid $20,000 in bounties for planting and maintaining trees on prairie land at the rate of $2.50 per acre a year for a period of six years, but for not exceeding ten acres to any one party. When claims in any year for such bounty exceeded in the aggregate $20,000 the parties have received a pro rata part of the $2.50 per acre. For a few years the bounty also applied to tree planting along roadsides, but as this was found to shade the roads too much and keep them in a wet condition the bounties for roadside tree planting were abolished. It having been thought by many people that the law had served its purpose and that the $20,000 a year could be better used in the purchase of third or fourth rate land by the State for forestry purposes, an inquiry was sent by the forestry department to the auditors of thirty or more counties in which tree planting bounties have lately been paid for their opinion as to the advisability of repealing the law. Out of the seventeen replies that were received, two auditors expressed a wish to have the law continued, two declined to express an opinion, and thirteen favored repeal. The bill which has been introduced to discontinue the payment of tree planting bounties contains a proviso that any person who, before the passage of the bill, shall have commenced tree planting with a view to receiving bounty, shall be paid such bounty in conformity with the present law. It is the prevailing opinion that the farmers who have done the most tree planting in Minnesota on prairie land have never taken the benefit of this law.—St. Paul (Minn.) *Pioneer-Press.*

BUILDING NEWS.

(The editors greatly desire to receive information from the smaller and outlying towns as well as from the larger cities.)

ANNISTON, ALA.—The plans of Breeding & Whildin, Birmingham, have been accepted for the new building for the Alabama Presbyterian College. It will be three stories, 200x300 feet, of brick and stone, costing $100,000.

ASHEVILLE, N. C.—It is reported that the Margo Terrace Hotel will be improved and enlarged.

ATLANTA, GA.—Plans have been drawn by T. H. Morgan, Prudential Building, for a $100,000 building, to be erected by the Masonic Temple Co. on site recently purchased.

AKRON, O.—Bids will soon be asked for $275,000 court house, to be erected here.

Seats of the Colonists

PART I

This work is intended to supplement "The Georgian Period" and to treat of the furnishings which were used in the buildings described and illustrated in the latter.

The part now published treats mainly of Chippendale furniture. It contains an illustrated Glossary of Terms by W. S. Bigelow and an Introductory Chapter by Horace C. Dunham.

It has 28 plates, each 10x14 inches, showing photographic views and "MEASURED DRAWINGS" of the best existing examples. These last, by Mr. Dunham, constitute the main feature of the work.

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Plans by J. Milton Dyer, 801 Cuyahoga building, Cleveland. John C. Frank, Secy. Comn.

Ann Arbor, Mich.—Plans and specifications for the new Ann Arbor high school, to be erected on the site of the building recently destroyed by fire, on the lot bounded by State, Washington, Thayer and Huron Sts., are being prepared by Malcomson & Higginbotham, Detroit, architects. The new building will cost about $200,000. It will be of light brick and stone, two stories high, fireproof. The dimensions are to be 240 feet on State St., 200 feet on Huron St., 240 feet on Thayer St. and 160 feet on Washington St. Malcomson & Higginbotham are also preparing plans for the Carnegie library, 50x80 feet, to adjoin the high school on Huron St. This structure will cost $30,000.

Atlanta, Ga.—Plans for the 4-story Masonic Temple, to be erected by the Masonic Temple Construction Company, at the corner of Peachtree and West Cain Sts., are being drawn by Architect T. H. Morgan.

Aspinwall, Pa.—Saint Timothy's Roman Catholic Church will erect an edifice. Brick and stone, fireproof, chandeliers, furnace heat, art glass windows and pipe organ. Cost, $40,000. Rev. J. Dejon is rector.

Baltimore, Md.—Delano & Aldrich, 9 East 41st street, New York, have drawn plans and are taking bids for the new Waters Art Gallery, to be erected at the corner of Center St. and Washington Pl. The structure will be 2 stories high, 120x129 feet, built of Milford granite and brick and Indiana limestone. It will have steel truss roof, steam heat, gas and electric lights, elevators, marble tiling floors, bronze window frames and doors, with interior furnished in marble and ornamental plaster. Estimated cost, $300,000.

Birmingham, Ala.—The Board of Education will erect two school buildings to cost $25,000 and $18,500, respectively; as soon as plans are adopted bids for construction will be asked.

Boston, Mass.—Contract for a 9-story brick and steel mercantile building for the Boston Wharf Co. has been let to the Fosburg Co., 6 Beacon St., Boston. Cost, $150,000.

Brooklyn, N. Y.—It is reported that H. Steinmann, 66-68 New St., New York, will take figures in about two weeks for the erection of a 5-story brick beer storage building, 55x76 feet, to be erected at the southeast corner of Bond and 3d Sts., Brooklyn, for Leonard Michel, 25 1st Pl. Cost, $60,000.

Baltimore, Md.—The trustees of the Egenton Asylum, Madison Ave. and Hoffman St., have decided to erect a number of stone, brick and frame cottages on Cedar Ave. in the suburbs of Baltimore. Cost, $100,000.

Brooklyn, N. Y.—It is reported that the Eastern District branch of Brooklyn Bureau of Charities will erect a new building on Division Ave., near Marcy Ave. W. I. Nichols, Supt.

Bayonne, N. J.—Architect Charles Edward Paterson is preparing plans for St. Vincent de Paul's Roman Catholic Society for the erection of a stone church 80x100 feet on Avenue C and 47th St., Bayonne. Plans will be ready for figures next week.

Brooklyn, N. Y.—The parish of St. Barbara expects to begin erection very soon of a $100,000 edifice on Central Ave., near Bleecker St. It will be of light-colored pressed brick, with terra cotta trimmings.

At a cost of over $20,000 the interior of the Beth Elohim Temple, on State St., near Hoyt, is to be remodelled and enlarged during the next few months.

Cambridge, Mass.—Report states that the Masonic Hall Association will erect a building to cost $80,000.

Cape May, N. J.—It is stated that $13,000 has been voted by the citizens of Cape May to erect new school buildings to replace those recently destroyed by fire.

Chapel Hill, N. C.—F. P. Milburn, Columbia, S. C., is drawing plans for chemical building 116'x69', to be erected by the University of North Carolina.

Charleston, S. C.—Sealed proposals addressed to Dr. R. S. Cathcart, chairman building committee, Medical Society of South Carolina, will be received at the office of Henry F. Cook, superintendent of construction, Calhoun and Lucas Sts., until April 5 for the erection and completion of Roper Hospital buildings. Plans and specifications can be seen and proposal sheets obtained at office of superintendent of construction.

Charlotte, N. C.—Plans are under way

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in the office of W. F. Denny, Atlanta, Ga., for the erection of 6-story hotel, 98'x160', at Charlotte, to cost $200,000. Owners, T. W. Hawkins and associates.

CHARLOTTESVILLE, VA.—It is said that Andrew Carnegie has offered the University of Virginia $500,000 upon condition that an equal amount be raised by the University, the money to be used for new buildings and equipment for the University.

CHICAGO, ILL.—The John Crerar Library board has decided to erect a branch building in Grant Park, near the Art Institute. Cost, $1,000,000.

CHICAGO, ILL.—Plans have been prepared by Jarvis Hunt, Monadnock building, for a 19-story building, 125x190 feet, to be erected at Clark and Monroe Sts. by the American Trust and Savings Bank. It is to be of brick, stone and steel. Cost, $800,000.

CHICAGO, ILL.—On April 4th, at the spring election, the proposition to issue $5,000,000 of bonds for the erection of a new court house for Cook county will be submitted to the voters.

CHICAGO, ILL.—An appropriation of $400,000 has been made for new buildings for the Police Department, $238,000 for fire stations and $54,000 for public baths.

CLINTON, IA.—The contract for the construction of the Cromwell Hotel, a 6-story structure, to be built on the corner of Sixth Ave. and Second St., at a cost of $225,000, has been let to the Tri-City Construction Company, of Davenport. The contract for the steel structural work has been let to the Clinton Bridge and Iron Works. Blue Bedford stone will be used in the building, and the contract for the fireproof construction has been let to the General Fire Proofing Company, of Youngstown, Ohio.

CLINTON, IA.—Bids are desired by Rev. J. A. Murray, rector St. Patrick's, until March 30 for the erection of new church and rectory. Schick & Roth, Architects, La Crosse, Wis.

CONCORD, N. H.—The legislature has appropriated $100,000 for the year 1905 to be used by the State Hospital in enlarging old and erecting new buildings.

DALLAS, TEX.—It is reported that the Parlin & Orendorff Company, of Canton, Ill., will erect two warehouses here. For further information address Wm. M. Robinson, local manager.

DAYTON, O.—It is reported that the National Cash Register Co. will erect a $400,000 auditorium in this city.

DES MOINES, IA.—M. E. Spring, R. G. Fisher and George W. Macartney have formed a company and purchased the Kirkwood Hotel. The statement is authorized that $40,000 will be expended in remodeling.

DETROIT, MICH.—A downtown station for the interurban electric lines is among the possibilities of the near future, provided plans can be worked out.

DENVER, COLO.—A 6-story brick and stone office building is to be erected on 17th and Champa Sts., to cost $200,000; a 2-story addition to the building of C. Boetscher on 16th and California Sts., to cost $40,000 and a 5-story brick and stone office on 16th and Champa Sts., to cost $300,000. Plans for all have been drawn by the F. E. Edbrooke Architectural Co., 510 Opera House block.

FORT WORTH, TEX.—It is stated that R. S. Coon, of Dalhart, Tex., and J. H. Madigan, of Houston, contemplate expending $150,000 building an addition to the Hotel Worth and making other improvements.

FALL RIVER, MASS.—We are informed that Al. Haynes, manager of the Castro, will erect a new theatre on North Main St., 25x125 feet. It will be elaborately decorated.

FLUSHING, N. Y.—The general contract for construction of the new armory has been awarded to the Hudson Valley Construction Co., Troy, N. Y. Charles P. Boland, Gen. Mgr.

FITCHBURG, MASS.—The New England Telephone & Telegraph Co. has purchased property at Goodwin and Pleasant Sts., and contemplates erecting a new central exchange office building.

FAIRHAVEN, MASS.—Henry H. Rogers, of Boston, will present this, his native town, with a new high school building. It will be modern in every respect, one of the features begin a thoroughly equipped gymnasium.

GREENVILLE, PA.—Repair shops to cost $30,000 will be built by the Bessemer and Lake Erie Railroad. E. H. Utley, general manager, has charge of the plans.

HEMPSTEAD, L. I.—The Board of Education of this village will vote April 18th on the proposition of appropriating $60,000 for the purchase of a site for a new school and its erection. Four sites have been selected for submission for the approval of the voters.

HOT SPRINGS, ARK.—It is stated that N. M. Moody will erect a 4-story brick hotel, 100'x130', to replace structure recently burned. Architect not yet selected.

HOT SPRINGS, ARK.—It is reported that Atkinson Bros., of Colorado Springs, Colo., have contract at $115,000 for building proposed courthouse for Garland county. Plans by W. R. Parsons & Son Co., 317 E. 5th St., Des Moines, Ia.

HOUSTON, TEX.—John Finnegan, owner of the Brazos Hotel and Annex, is having plans prepared for the erection of another hotel to cost about $100,000.

HUNTINGTON, W. VA.—The Central Realty Co. has been organized for the erection of a 5-story brick and stone hotel, to

Continued on page xii.

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The American Architect and Building News

Vol. LXXXVII. SATURDAY, MARCH 25, 1905. No. 1526.

CONTENTS

SUMMARY: 51, 100
Fall of Several Brick Buildings in New York City, and the Cause.—The Wisconsin State-house Competition and the Evils of State Pride.—President Roosevelt Avoids Ordering Himself Into Retirement.—The "Ghost' and the Bronx Court-house Competition.—The Architect of Middlesex County, Mass., Buildings Sues for Commissions.—No Insurance to be Placed on the Connecticut State-house.—Death of William R. Walker, Architect.
HEATING AND VENTILATING.—IV. 95
THE MODERN FRENCH SCHOOL OF SCULPTURE.—I. 97
THE PRAXITELEAN PHRYNE. 98
THE NEW BERLIN CATHEDRAL. 99
ILLUSTRATIONS: 100
North Aisle: Rogers Memorial Church, Fairhaven, Mass.—Tower Vestibule in Same Church.—Doorway between South Aisle and Porch in Same Church.—U. S. Post Office, Elizabeth, N. C.—U. S. Post Office, Natchitoches, La.—St. Paul's Chapel for Columbia University, N. Y.—Rear View of Same.—Proposed House, Lake Champlain, N. Y.
Additional: The Chancel: Rogers Memorial Church, Fairhaven, Mass.—Pulpit and Organ-case in the Same.
NOTES AND CLIPPINGS: 100
MISCELLANEOUS: IV

NO searching for recondite causes is needed in the case of the accidents which made various parts of Harlem and The Bronx a noisy and rather dangerous place on Sunday last, not less than four brick buildings in process of construction having collapsed during the day in different parts of that quarter of the city. The sudden rise in temperature was the immediate cause and, though it is probable that there may have been some settling of foundation walls and piers, we believe there was sufficient settling in the walls themselves to cause their own overthrow, even if they had been built on the most solid of foundations. The walls that gave way first were northern walls, in most cases rear walls where workmanship is habitually slighted, which had obviously been "run up" during the exceptionally steady cold weather of the winter. Not being favored by the noonday sun, in all probability the mortar in no single mortar-joint in the entire wall had had the remotest chance to set, but as soon as it became chilled froze at once, expanded and remained expanded until Sunday's warm wave attacked it. If it were possible to remove instantly and evenly all this expansion in these frozen joints there would be caused an actual drop of several inches in a six-story wall which would create a shock that no wall could stand. But even if the expansion was gradual, the shrinkage in height was no less actual and the distortion of the floors, from front to rear, may have caused the overthrow of material, barrels, bricks or what not, and sent them against the settling outer wall with enough impact to explain how some of the walls happened to fall outwards.

THE cause of these concurrent collapses seems perfectly obvious and the responsibility presumptively rests, this time, with the men on whom all the loss will fall, since no life was lost and the money damage must be borne by the builders. There is a section of the Building Code that forbids the laying of brickwork when the temperature is below twenty-four degrees, but, like the rest of the code, many builders believe it is only needful to observe it while the inspectors are in sight, and are not oblivious to the fact that rear walls are less under observation than front ones. Really trustworthy mechanics using heated bricks and mortar mixed with salt water, or properly tempered with sodic carbonate, or using neat Portland cement might safely be allowed to carry on bricklaying in all but the severest weather, for such men can be counted on to observe and reason, and conscientious enough to unlay in the morning the top courses they find were not properly protected overnight. Such men, however, are not to be found on every job and a hard-and-fast rule that forbids brick-laying of any kind when the temperature is below a fixed point is a reasonable measure, although quite a useless one unless rigidly enforced.

THE appeal to State pride is never so persistently made as when a contract, a "plum" that is, is on the point of being awarded to a citizen of another State, and, probably, no architect who ever won a competition for an important public building in another State altogether escaped the envious machinations of the friends of local practitioners or, more generally still, local contractors. Had Mr. Cass Gilbert hailed from Milwaukee in place of St. Paul, we doubt whether any of the very unpleasant discussion about the proposed capitol building for Wisconsin would ever have offended eye or ear. The latest argument is that the Capitol Commissioners, having been appointed, before the partial distruction by fire of the old building, to devise means for the enlargement and improvement of that building, actually exceeded their power in holding a competition for the new building, which the fire made obviously necessary. This point has been upheld by the State's Attorney-General who refuses to pay to Mr. Gilbert the money, fifteen hundred dollars, that was to go to the author of the selected design as payment on account. Further than this he argues that, if it is wrong to pay anything to Mr. Gilbert, it is also wrong to pay second and third money, one thousand dollars in each case, to the architects winning these ranks in the award. The logic is good, but that will not make it any the less distasteful to the advocates of State's rights, since the designs placed second and third were prepared by Wisconsin architects, who have reason now to feel that their vociferous friends have done them a doubtful service in making them a sacrifice to the fetish of State pride. The Milwaukee *News* makes a further point which is perfectly sound. It points out that both in the old commission and in the proposed new one there are justices of the Supreme Court, and urges that it is grossly improper that judges before whom may be brought cases growing out of the interpretation or imperfect execution of the contract should have any part or responsibility for its drawing or awarding. We do not recall noticing that this point has before been

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raised, and yet it is not uncommon to find judges members of such commissions. Of course, in case of actual suit the judicial commissioner would decline to sit in the case; but there might be a subtile feeling of fealty to a brother official that might insensibly have an effect on the judge who did hear the case.

FINDING himself most amusingly in danger of being legislated out of office through his own "executive order," President Roosevelt has modified the order, to which we referred last week, creating a Consultative Board of Architects to have control over certain building matters in Washington, so that the members in place of serving without pay are to be paid ten dollars per day and expenses, while actually discharging their duties. It seems that a recently enacted law forbids any department or officer of the government to accept voluntary service for the government, and provides that "any person violating any provision of this section shall be summarily removed from office." The members of the Board, who would have been quite willing to serve without pay, will be no less willing to pocket the honorarium, if by so doing they aid the President to escape unintended hari-kari.

A GHOST who, in place of sedately stalking up and down, gibbering and dismally clanking its chains, actually talks violates the well established laws of phantasmology. Mr. Oscar Bluemner, who confesses to have played the "ghost" in the preparation of the design for the million-dollar court-house for the Borough of the Bronx, New York, which has just been approved by the Municipal Art Commission, seems unwilling to be bound by the laws of the game, but talks in a manner which causes much distress to his employer. Moreover, he has a most worldly appetite, quite out of keeping with his unearthly occupation, and has filed a complaint with the Supreme Court in which he charges that Michael J. Garvin, until recently Building Commissioner for the Bronx, to whom the job has been awarded, since the design was submitted in his name, refuses to live up to the agreement and pay him one-half of the commission on the work, twenty thousand dollars of which he believes is now due to and collectible by him. Mr. Bluemner is said to be a medallist of the Royal Academy at Berlin, and also to have spent two years in architectural study in Paris, and to be otherwise equipped as a trained and experienced designer. Mr. Garvin is understood to deny that there was any such agreement between himself and the complainant or that the latter had any hand in preparing the accepted design. As every one knows that "ghosts" are employed in architectural offices, there is nothing strange about the allegation, save that this particular ghost has become endowed with speech and capacity for looking after his interests in quite a mundane way.

A RATHER interesting case, which has its instructive features for architects who have public bodies for clients, is likely to come up for settlement in a Massachusetts court of equity. Mr. Olin W. Cutter has in the last few years designed several successful buildings at East Cambridge for Middlesex County and his commissions upon the main contracts have been properly taken care of. But, as the work extended over several years, and as there were, besides the usual extras, several unimportant alterations, minor work or what not that called for his professional attention, he found when his duties had been fully discharged that he had an unsatisfied claim upon the county in the sum of rather more than thirteen thousand dollars, and to secure payment of his claim he has been forced at length to bring suit. The case was heard in chambers upon an agreed statement of facts, the result being that the Court awarded him the sum of twenty-two hundred and fifty-nine dollars, an amount so inadequate that the case will probably be brought to trial before a jury in a higher court. Apparently, there was not much disposition to dispute the justice of the claim, but the county, through its counsel, saw fit to take advantage of one of those technicalities which do so much to make the common man disbelieve in laws and lawyers. The defense set up was that the State Legislature had limited the cost of the buildings to five hundred thousand dollars and as there was only six dollars of that amount undisbursed, the county, much as it would like to do otherwise, could only pay six dollars to the architect who had served it so satisfactorily. Fortunately, on looking into the accounts, there was found to be an unexpended balance from the appropriation for heating and ventilating and also that some of the minor items in Mr. Cutter's account could be charged against other branches of the government. So, in one way or another, there was scraped together and offered to the plaintiff the sum named above. But two thousand odd with expressions of good will are less desirable than thirteen thousand odd, and we feel that Mr. Cutter should have no great trouble in getting better treatment at the hands of a court of equity or, possibly, through inducing the next Legislature to pass a bill for his relief.

CONSIDERING the number of State-houses that have been destroyed, partially or totally, by fire during the last score of years, one would think that buildings of that particular class would be kept well protected by insurance and that, seeing that the premiums are paid from the public treasury, no one would think that the policy of self assurance was adapted to the situation. Yet the State of Connecticut has just decided not to insure the capitol at Hartford—where if anywhere the real merits and economies of insurance should be understood—and has considered it better business to save four thousand dollars a year on a policy for one million dollars, even if it does leave at risk a building and contents irreplaceable with thrice that sum.

LAST week there died in Pawtucket, Mr. William R. Walker, an architect, better known as General Walker, for, after serving through the Civil War as a lieutenant in one of the Rhode Island regiments, he became greatly interested in the militia of the State and served through all its grades, having at length held the rank of major-general for several years. During a considerable part of the last thirty years Mr. Walker had a thriving practice which his activities in political paths in a large degree secured to him. In this way he was able to design a considerable number of school-houses and town buildings as well as much private work.

HEATING AND VENTILATION.—IV.

DIRECT HOT-WATER HEATING.

A HOT-WATER system is similar in construction and operation to one designed for steam, except hot water flows through the pipes and radiators instead of steam. The flow of water through the system is produced solely by the difference in weight of the water in the supply and return pipes, due to the difference in temperature.

When water is heated it expands, and thus a given volume becomes lighter and tends to rise, and the cooler water flows in to take its place. If the application of heat is kept up, the circulation thus produced is continuous. The velocity of flow depends upon the difference in temperature between the supply and return, and the height of radiator above the boiler. The horizontal distance of the radiator from the boiler is also an important factor.

Hot water is especially adapted to the warming of dwellings, owing to the ease with which the temperature of the water can be regulated. When steam is used the raditors are always practically at the same temperature, while with hot water their temperature can be varied at will. A system for hot-water heating costs more to install than one for steam, as the radiators have to be larger and the pipes more carefully run. One disadvantage in the use of hot water is the danger of freezing when radiators are shut off in unused rooms. This makes it necessary in very cold weather to have all parts of the system turned on sufficiently to produce a circulation, even if it is slow in some parts. Hot-water boilers or heaters differ from steam-boilers principally in the omission of the steam-space above the heating-surface.

The passages in a hot-water heater need not extend so directly from bottom to top as in a steam-boiler, since the problem of providing for the free liberation of steam bubbles does not have to be considered. Practically, the boilers for low-pressure steam and for hot water differ from one another but little in the character of the heating-surface, so that methods already given for computing the size of grate-surface can be used with satisfactory results in the case of hot-water boilers. It is sometimes stated that owing to the greater difference in temperature between the furnace gases and the water in a hot-water boiler, as compared with steam, the heating-surface will be more efficient and that a smaller boiler can be used. While this is true to a certain extent, different authorities agree that this advantage is so small that no advantage should be taken of it, and the general proportions of the boiler should be calculated in the same manner as for steam.

Automatic regulators are often used on hot-water boilers for the purpose of maintaining a constant temperature of the water. Such regulators are constructed in different ways, some depending upon the expansion of a metal pipe or rod at different temperatures, and others upon the vaporization and consequent pressure of certain volatile liquids. These means are usually employed to open small valves which admit water-pressure under rubber diaphragms, and these in turn are connected by means of levers and chains with the draught doors of the furnace, and so regulate the draught as required to maintain an even temperature of the water in the heater.

Cast-iron radiators and circulation coils are used for hot water as well as for steam. Hot-water radiators differ from steam radiators principally in having a horizontal passage between the sections at the top as well as at the bottom. This construction is necessary in order to draw off the air which gathers at the top of each loop or section; otherwise they are the same as steam radiators, and are well adapted for the circulation of steam, and in some respects are superior to the ordinary pattern. Hot-water radiators are usually tapped and plugged so that the pipe-connections can be made either at the top or bottom. The efficiency of a hot-water radiator depends upon the temperature at which the water is circulated. The best practical results are obtained with water leaving the boiler at a maximum temperature of about 180 degrees in zero weather and returning at about 160 degrees, thus giving an average temperature of 170 degrees in the radiators. Variations may be made, however, to suit the existing conditions of outside temperature. We have seen that an average cast-iron radiator gives off about 1.5 B.T.U. per hour per square foot of surface per degree's difference in temperature between the radiator and the surrounding air, when working under ordinary conditions, and this holds true whether filled with water or steam. If we assume an average temperature of 170 degrees for the radiators, then the difference will be may be taken as the efficiency of a hot-water radiator under the above conditions, which represent good average practice.

This calls for a hot-water radiator about 1.5 times as large as a $170 - 70 = 100$ degrees, and this multiplied by $1.5 = 150$, which steam radiator to heat a given room under the same conditions. This is common practice, although some engineers multiply by the factor 1.6, which allows for a lower temperature of the water. Water leaving the boiler at 170 degrees should return at about 150 degrees; the drop in temperature should not ordinarily exceed 20 degrees.

A system of hot-water heating should produce a perfect circulation of water from the boiler to the radiating-surface, and thence back to the boiler through the returns. The system of piping usually employed is shown in Figure 15. In this arrange-

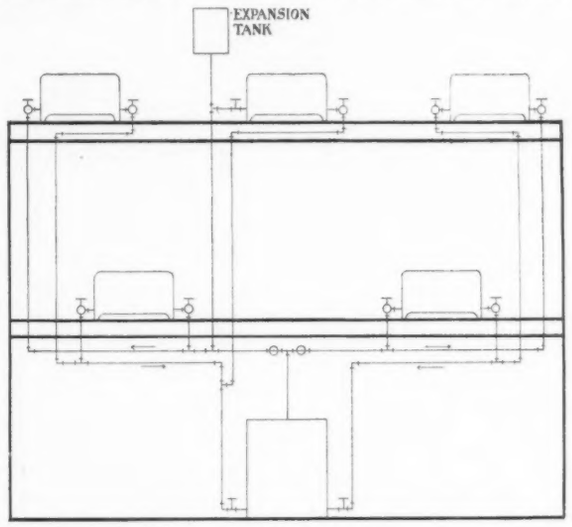

FIG. 15.

ment the main and branches have an inclination upward from the boiler; the returns are run parallel to the mains and have an inclination downward toward the boiler and connect with it at the lowest point. The flow-pipes or risers are taken from the tops of the mains and may supply one or more radiators as desired.

The return pipes from the radiators are connected with the return mains in a similar manner, although the connections are usually made in the side instead of the top.

In this system great care must be taken to produce a nearly equal resistance to flow in all of the branches so that each radiator may receive its full supply of water. It will always be found that the principal current of heated water will take the path of least resistance, and that a small obstruction or irregularity in the piping is sufficient to interfere greatly with the amount of heat received in different parts of the same system.

Every hot-water system should be connected with an expansion-tank placed at a point somewhat above the highest radiator. The tank must, in every case, be connected with a line of piping which cannot be shut off from the boiler. When water is heated, it expands a certain amount, depending upon the temperature to which it is raised, and a tank or reservoir should always be pro-

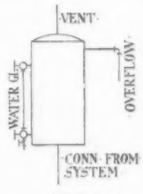

FIG. 16.

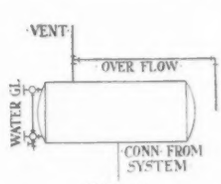

FIG. 17.

vided to care for this increase in volume. Expansion-tanks are usually made of heavy galvanized-iron or steel in one of the forms shown in Figures 16 and 17, the latter being used when the head-room is limited. The connection from the heating system enters at or near the bottom of the tank and an open vent-pipe is taken from the top. An overflow connected with a drain-pipe or sink should be provided. Connections for supplying the boiler with water are often made both at the boiler and at the expansion-tank, the former to be used when first filling the sys-

tem, as by this means all air is driven from the bottom upward and is discharged through the vent at the expansion-tank. Water that is added afterward may be supplied directly to the expansion-tank, where the water-line can be noted in the gauge-glass.

An altitude gauge is often placed in the basement and the red hand or pointer set to indicate the low-water line in the expansion-tank. When the movable pointer falls below the colored or fixed one, more water may be added, as required, through the feed-supply at the boiler.

When the tank is placed in an attic or roof-space where there is danger of freezing, the expansion-pipe may be connected at the side of the tank, 6 or 8 inches from the bottom, and a circulation-pipe taken from the bottom and connected with the return from an upper-floor radiator. This produces a circulation through the tank the same as in a radiator, and keeps the water hot. A ball-cock is often placed in the tank and so arranged as to prevent the water from falling below a given point.

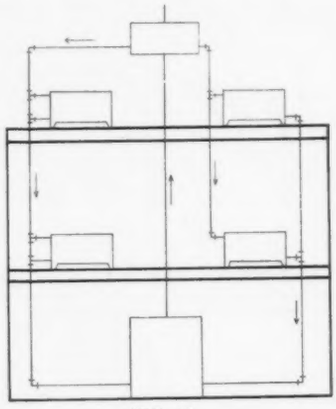

FIG. 18.

In small houses the expansion-pipe is often connected with the house-supply tank instead of using a separate one.

The size of the expansion-tank depends upon the volume of water contained in the system, and the temperature to which it is heated. The following rule for computing the required capacity of the tank may be used with satisfactory results:

Divide the square feet of radiation by 40 and the result will be the required capacity of the tank in gallons.

Figure 18 shows a system of piping often used with very satisfactory results. A single riser is carried directly to the expansion-tank, from which branches are carried to the radiators as shown.

With this system of piping the air in the water rises at once to the expansion-tank and escapes through the vent, so that the use of air-valves upon the radiators is not necessary.

There are various methods of connecting the radiators with the mains and risers. Figure 19 shows a radiator connected with horizontal flow and return mains below the floor. The manner of connecting with a vertical riser and return drop is shown in Figure 20. The supply is often connected with the bottom as well as the return. As the water tends to flow to the highest point, the radiators on the first floor should be favored by making the connections at the top of the riser and taking the pipe for the upper floors from the side. Figure 21 illustrates this method of connection.

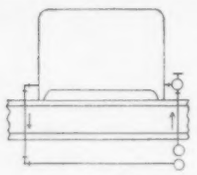

FIG. 19.

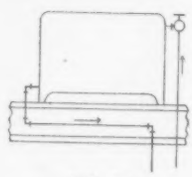

FIG. 20.

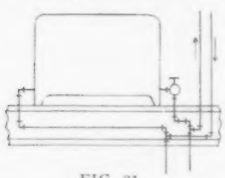

FIG. 21.

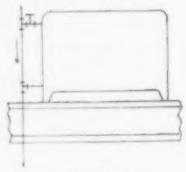

FIG. 22.

The connection shown in Figure 22 is often used with the overhead system, as indicated at the left in Figure 18.

When the connection is made in this manner the cooler water from the radiators is discharged into the supply-pipe again, so that the water furnished to the radiators on the lower floors is at a lower temperature, and the amount of heating-surface must be correspondingly increased to make up for this loss.

An increase of 10 per cent. for each floor is sufficient for this under ordinary conditions.

Sometimes the boiler and piping are arranged for either steam or hot water, since the demand for a higher or lower temperature of the radiators might change. The object of this arrangement is to secure the advantages of a hot-water system for moderate temperatures, and of steam-heating for extremely cold weather.

While this system has some advantages in the way of cost over a complete hot-water system, the labor of changing from steam to water is more or less troublesome, and should the connections with the expansion-tank not be opened, serious results might follow.

Gate-valves should always be used in the mains in connection with hot-water heating, although angle-valves may be used at the radiators.

There are several forms of radiator valves made especially for hot-water work; their chief advantage lying in a device for quick opening and closing.

It is customary to place a valve only in the supply connection, as that is sufficient to stop the flow of water through the radiator. Sometimes each riser is separately valved and provided with a draw-off pipe and valve, so that in case of leaks the riser to which a radiator is connected can be shut off and the radiator drained before making repairs. This arrangement should always be provided in the case of large houses. The ordinary hand pet-cock air-valve is about as satisfactory as any for hot-water radiators, although there are several automatic valves on the market. In case an automatic valve fails to close, much more damage will be done by water than by steam.

All fittings such as elbows, tees, etc., should be of the "long-turn" pattern. If the common forms are used, they should be a size larger and bushed down to the size of the pipe.

The size of pipe required to supply any given radiator depends upon our conditions: First, the size of the radiator; second, its elevation above the boiler; third, the length of pipe required to connect it with the boiler; and, fourth, the difference in temperature between the supply and return.

The heat given off by a radiator always insures a difference in temperature between the columns of water in the supply and return pipes, so that as long as heat is supplied by the furnace the flow of water will continue. The greater the difference in temperature of the water in the two pipes, the greater the difference in weight, and consequently the more rapid will be the flow. The greater the height of the radiator above the boiler, the faster will be the flow for a given difference in temperature.

As it would be a long process to work out the required size of each pipe theoretically, the following tables have been prepared, covering the usual conditions met with in practice. The first gives the sizes of horizontal mains and has been calculated on a basis of 10 feet difference in elevation between the center of the boiler and radiators, and a difference in temperature of 17 degrees between the supply and return, for different lengths of run:

Size of pipe.	Square feet of radiating-surface. 100-ft. run.	200-ft. run.	300-ft. run.	400-ft. run.	500-ft. run.
1	30	....	....	....	....
1¼	60	50	....	....	....
1½	100	75	50	....	....
2	200	150	125	100	75
2½	350	250	200	175	150
3	550	400	300	275	250
3½	850	600	450	400	350
4	1,200	850	700	600	525
5	....	1,400	1,150	1,000	700
6	....	....	....	1,600	1,400

The second table gives the sizes of vertical risers for supplying direct radiation on different floors, assuming the drop in temperature to be the same as before and the height of the stories 10 feet each.

Size of riser.	Square feet of radiating surface. 1st story.	2d story.	3d story
1	30	55	65
1¼	60	90	110
1½	100	140	165
2	200	275	375
2½	350	475	...
3	550	...	...
3½	850	...	...

(To be continued.)

CHARLES L. HUBBARD.

THE MODERN FRENCH SCHOOL OF SCULPTURE.[1]

IN the history of sculpture there are found three schools quite distinct in character, each of which has had a profound influence upon the sculptor's art. One of these is the Greek, the second that of the Italian Renaissance and the third is the modern French school. The influence of the first two has been practicall determined by the judgment of posterity. The French school still lives, and it is not yet possible to determine precisely its position and its influence as compared with that of the others.

There are no other distinctly great schools of sculpture in the world besides these three. The Assyrians and the Egyptians had their sculptors, some of whom did notable work, but neither of these nations founded what can properly be called a school of sculpture.

There were Gothic sculptors whose work is most interesting and even rises to greatness at times, but it is generally subservient to an architectural design and used for the purpose of ornament. There are many Gothic figures on tombs and monuments besides those which are used in connection with buildings, but the sculptors of these produced few detached statues intended to exist for themselves alone, without connection with any architectural or monumental work. In his aim and effort the Gothic sculptor closely resembled the Greek, who adorned temples and public buildings. The Greeks, however, not only ornamented their buildings with exquisite sculptures, but also produced individual works of rare beauty quite independent of their connection with any building. This the Gothic sculptor did not do to any considerable extent, and it is for that reason, mainly, that he cannot be said to have founded what could rightly be called a school of sculpture.

BARTOLOMMEO COLLEONI, VENICE.
Verrochio & Leopardi, Sculptors. After an etching by Unger.

Each of the three great schools has its distinguished characteristics which are plainly marked and full of interest to the student of sculpture. To the Greek the idea of beauty was supreme. What was not beautiful had no place in art, according to his thought. He also cared much for repose and placidity. None of the great Greek statues are violent or unrestful, though the subject may call for intense action. Even the "Laocoon" is reposeful, though its subject is a tragic struggle between life and death.

This idea of beauty and repose was dear to the Greek because he loved the world he lived in and had but vague conceptions of any other world that could be more beautiful than this. It is strange that his intellectual struggles and conquests find so little expression in his art, but such is, nevertheless, the fact. He seems to have thought art a sacred thing, not to be disturbed by problems of philosophy, statecraft or war. It was to him a kind of religion and always beauty and peace were the supreme gods of his art world. When a Greek made a statue of a god, he aimed to give the expression of peace in power and power in peace, but beauty of feature, form and line was always an essential part of such a conception. The statues of Phidias and Praxiteles were inspired by these thoughts. Even the frieze of the Parthenon, though it commemorates the conquests of the Athenian hero, Theseus, is absolutely reposeful and beautiful in the entire conception as well as in every part, however small, that enters into the general design.

The Apollo Belvedere in the Vatican is another apt illustration of the Greek thought about his gods. Power, peace in consciousness of conquering strength, and the most perfect manly beauty find here a complete and absolutely harmonious expression. The so-called Venus of Milo is another example of this Greek idea, quite as perfect in its expression of the womanly peace and power as is the Apollo in expressing their manly side. The Greek admitted no idea of conflict or doubt in the statues of his gods. Such struggles were beneath them. They were supreme and wholly restful in their power and their beauty.

When the Italian came to study the Greek and, almost with rapture, admire his beauty, the world was not as it had been in the palmy days of Athens. There had been great struggles, both physical and mental. Physically, the Roman had overcome the Greek, but in the mental struggle he had not been victorious. Here the Greeks were still the masters. Nevertheless, there was a wonderful awakening of the mind in the time of the Italian Renaissance and new problems were constantly presented which neither the Greek's thought nor his ideas of beauty could satisfactorily solve. Some of these problems were connected with the religious life which the Italian must, perforce, deal with because of Christ and His gospel. This was the disturbing element which interfered with the completeness of the Greek's intellectual work and even of his artistic work, so far as it had to do with the mind or the spirit.

In the time of Lorenzo de' Medici, when the flower of the Italian Renaissance burst into full bloom, the power of the spiritual element in art and life was not consciously recognized to nearly so great a degree as that of the intellectual element. It was true that the painter, the sculptor and the architect worked mostly for the Church, but it was equally true that the work of each of them was becoming more and more intellectual and scientific. The mind of the time was in a ferment and the old, still wine of the Greeks was thereby greatly agitated and disturbed, though its flavor and its quality were appreciated and admired.

This reaction against Greek calmness and quiet went too far. Even the greatest master of the Italian Renaissance, Michael Angelo, has often been accused of exaggeration. The scientific and intellectual mastery of this mighty man was so profound that he could not help expressing it in his works, and, therefore, his statues and his paintings did seem exaggerated because they went so far beyond what had ever before been done in art in expressing the conceptions of the intellect. The statue of the thoughtful Duke Lorenzo expresses better than any other work the intellectual side of the Italian Renaissance. Here there is no exaggeration whatever. There is a quietness in its outward aspect that suggests the Greek work, but underneath there is a tremendous struggle of the mind, which is felt as deeply and tragically as the mood of Hamlet when he was weighing the advantages of life and death. The same spirit is found in Michael Angelo's frescos of the prophets and sybils in the Sistine Chapel; but here something of the spiritual as well as the intellectual struggle is shown because of the imperative demand of the place and the subject. The Greek slaves made for the mausoleum of Julius are similarly inspired. They struggle physically in their bonds, but their mental struggle, touched only by some tragedy of the spirit, is even more profoundly expressed than the physical

[1] A lecture by Mr. Walter Cranston Larned, delivered at the Art Institute, Chicago, in the season 1904-5.

anguish. No Greek ever produced such statues as these. Only the intellect of the Italian Renaissance could have produced them.

Other great sculptors of this Renaissance time must be spoken of, because they illustrate the intellectual development of their day in ways quite different from those of Michael Angelo. Donatello was a thoughtful man, but he had a playful spirit. He did not care to carry his problems too far. In a way, he was Greek, especially in his love of beauty, but some of his Saints and Apostles are very majestic, though always intensely human. His dancing boys on the frieze of the choir-screen in the Duomo of Florence are almost as merry as Greek fauns; but there is, nevertheless, some thoughtfulness about them, even a touch of spirituality, quite different from the Greek work, though not nearly so deep and convincing as the figures of the children on the frieze of the opposite choir-screen, which are, perhaps, the masterpieces of Lucca della Robbia.

Benvenuto Cellini was the prince of goldsmiths, but he aspired also to heroic work, nor did he fail in this, as his statue of Perseus in the Loggia at Florence abundantly testifies. He was greatly influenced by the Greek, but, nevertheless, the intellectual and scientific spirit of his day also profoundly affected him.

Some of the sculptors of this period, like Orcagna, John of Bologna and Mino da Fiesole, were much influenced by this spiritual side of their art. Both Lucca and Andrea della Robbia felt this influence more profoundly than any of them. Their works in bas-relief are closely akin to the religious painting of Fra Angelico.

It is easily to be seen from a comparison of the works of these great artists what problems were meeting the awakened Italian mind in the days of the Renaissance. It must be remembered that this period was a long one. Michael Angelo lived nearly a hundred years. When he was a young man, Leonardo da Vinci was almost in his prime and the teacher of Leonardo, Verrocchio, had passed away. Verrocchio himself was, nevertheless, a potent factor in the sculptural development of the Italian Renaissance. His equestrian statue of Colleoni at Venice might almost be called a connecting link between the work of Greek and Roman and that of Leonardo and Michael Angelo. Ruskin says that this statue of the Venetian Duke is the finest equestrian statue in the world. Some prefer that of Marcus Aurelius at Rome. The critics of the time of Leonardo da Vinci say that his statue of the Duke Sforza of Milan far surpassed either of them. Most unfortunately this has been destroyed and it is only possible to judge of it by the master's sketches and the impassioned words of the contemporaneous critics.

Verrocchio's Colleoni is very human and realistic. There is also intellect in it and a good deal of the Greek repose. Michael Angelo made no equestrian statue, but both his "Moses" and "David" have in them something of the spirit which animates Verrocchio's masterpiece at Venice.

From this brief allusion to some of the notable works of sculpture of the Italian Renaissance it is easy to see the domination of the intellect at this time in the world of art, and this is certainly the predominant characteristic of the second great school of sculpture that the world has known. Nevertheless, it must be carefully noted that Michael Angelo, who was by far the most intellectual of all the Renaissance masters, had no followers. He did not attempt to found a school. In his day he was unique and he still is unique, like Shakespeare or Goethe or Wagner. There were many who sought to imitate him, but not under his own teaching. Shakespeare might as well have had pupils in the art of writing dramas.

Bernini is the most prominent of those who attempted to imitate Michael Angelo, and the lamentable failure of most of his work shows the utter impossibility of his attempt. He even exaggerated the most exaggerated of Michael Angelo's work so far as the outside part of it, the muscular and anatomical side, was concerned, but of the intellect which inspired every work of the great master he had no conception. His works are, therefore, almost grotesque in spite of a considerable technical mastery. If the spirit is lacking the flesh is necessarily weak.

From this analysis of the Greek and Renaissance schools of sculpture it would seem that the problem of the Frenchman in our own day was a very serious one. He could not be merely an imitator. Originality is an essential part of all great work, and this cannot be studied and cultivated: it is born like the genius of the poet.

If the Frenchmen had not an inspiration of their own they could not hope to be great and independent sculptors. But they did have an inspiration and it was quite different from that of either of the two great schools which had preceded them. The modern French sculptor is a student. He is well acquainted with all that has preceded him in the world of art He has in the Ecole des Beaux-Arts a training-school unequalled in the world to-day, nor has it ever been surpassed in the rigor, thoroughness and comprehensiveness of its course of instruction. Here he must be trained. The exacting requirements of this school must be met before his genius can unfold its own wings and soar toward fame. The modern French sculptor's environment is, therefore, different from that of his brethren in the two other great schools, since no such comprehensive place of instruction as the École des Beaux-Arts was known either to the Greeks or the Italians of the Renaissance time.

This opportunity of study does not, however, account for the peculiar quality of the modern French school of sculpture. To understand this it is necessary to look deeper than the material side and find what mental and spiritual influence have been at work in this last of the three great schools.

As to the intellectual influence upon sculpture it would hardly seem possible to go farther than the greatest Italians had already gone. Nevertheless, the Frenchman did go farther. His intellect was better trained and he knew far more of science than most of his Italian brothers of art. One thing that did not play its proper part in Italian sculpture was the influence of the spiritual upon the mental. This influence is felt in the greatest of the Italian masters, but has not found complete development in their works.

It may be surprising to find that the French sculptor of to-day has recognized the power of the spirit in his work more than any of the other great sculptors. The quality which is often called "realism" is also marked in the modern French school. This might be thought to be opposed in effect to the spiritual quality, and to a certain extent that is true. But this realism comes from a close study of life not only in its outward but in its inward aspects. No true realism has to do with the outward alone, because the mind and the spirit are just as real as the body.

(To be continued.)

THE PRAXITELEAN PHRYNE.

THE recent exhibition in New York of a statue of Aphrodite antique, cinquincento or modern, according to individual preference, has provoked an unusual amount of discussion in the public prints, most of which revealed anything more than a very superficial knowledge of the subject-matter of the discussion, but now and then something appeared that gave evidence of intelligence and scholarship.

Because of the ingenuity with which he supports his theory and because of the real human interest that lies behind it, it seems worth while to put on record the following letter which Mr. J. C. Bayles, M.E., Ph.D., addresses to the New York *Times:*

"The wonderfully fascinating statue which has attracted so much attention at the National Arts Club admits of an interpretation quite different from that which has hitherto been given it.

"The solution of any mystery, to be a solution at all, needs to be perfectly consistent with itself and leave nothing unexplained. The man who carved this great work knew what he was doing, and had a perfectly consistent purpose throughout. To trace this purpose and find in it what seems to the writer a perfectly satisfactory explanation of the work in whole and in detail is what I shall attempt. Since, in the last analysis, art criticism is a matter of opinion, I offer no apologies to any one for the courage of my convictions.

"It seems to me wholly probable that this is the work of Praxiteles or a copy from his work so nearly contemporaneous in date as to entitle it to rank as the most perfectly preserved relic of the Praxitelean age of Greek art. It seems to me wholly improbable that it was intended to represent Aphrodite at all, for the excellent reason that it does not. The lack of any evidence of an attempt to idealize the proportions of the figure, and the presence of what seems to me indisputable evidence that it is a portrait statue of a woman whose anatomical peculiarities are easily accounted for, and which are faithfully and lovingly preserved, are the bases of my hypothesis.

"The presence of the dolphin perhaps warranted the hasty conclusion that as this was the conventional symbol of Aphrodite, or one of them, Aphrodite was of course intended. This name, signifying "born of the sea foam," applies to the nascent daughter of Zeus and Dione, who rose from the waters near Cythera and was carried by the creatures of the deep to the shores of Cyprus.

Thus represented, she would be standing in or on the water. The figure under review is neither in nor on water. No sculptor, unless a fool, would have attempted to represent water by a level slab of marble scored with ripple-marks. Aphrodite at the moment of her creation would not have been so anxious to go ashore that she would have started to walk there.

"The figure we are considering is walking—timidly and almost hesitatingly, indeed, but with the weight carried firmly on the left foot and the right partly raised for a forward step. The need of a support under the raised heel, to give strength, accounts for the strut which connects it to the pedestal. A sculptor who wished to convey the impression that the figure was on water would have given the requisite support in a rolling wave or undulation and thus avoided the expedient which, assuming that she is walking on water, would have been ridiculous. The spread of the toes of the foot which carries the weight shows very clearly to my mind that something more stable than water is meant to be under it. Moreover, the feet are not those of a being just created who is using them for the first time. They have a muscular development which comes only from systematic use for a specific purpose. The turn of the head, enabling the walking woman to look down a line perpendicular to the path she is following would seem to suggest that she was more interested at the moment in what was beside her than before her.

"But the dolphin? That is not a land creature, and what is its purpose? My judgment is that it has a double function. Primarily, a support for the figure was needed. The area of cross-section at the left ankle and right instep is relatively so small as compared with the average cross-sectional area of the body above the knees that even a slight jar might break it off close to the pedestal. The usual expedients of the Greek sculptors—column, tree-trunk, flowing draperies, loves, etc.—would have been incongruous in the circumstances, even ludicrous. Moreover, it was desired to indicate by a symbol the near presence of water; hence the supporting dolphin which has come to meet the woman at the edge of the ocean. If he could have been left out, however, it is a safe assumption that he would not have been put in, since the symbol was not needed to suggest the meaning.

"I believe the statue under discussion to be a portrait of Phryne, and that it commemorates an event as well attested as any in early Greek history not connected with dynastic changes or military operations, and consequently not provable by collateral historical evidence. During the period when Phryne was most in evidence, the feast of Poseidon was held on the shore at Eleusis. At the close of the ceremonies she stepped from the multitude, dropped her garments, and, in the sight of all the people, stepped into the sea to offer to Poseidon the tribute for her charms. Apelles and Praxiteles were both present, and each saw in the incident something worthy of commemoration.

"The essential difference in their points of view was that Praxiteles was a lover of Phryne, and Apelles, so far as we know, was not. Praxiteles saw the woman; Apelles gained an idea. The result was that both these artists commemorated it, each in his own way. Apelles painted the Aphrodite which we all know, idealizing the figure to the limit of his imagination. Praxiteles modeled Phryne as she was, in the act of stepping into the water at Eleusis—and, womanlike, more interested in the people on the shore, who were probably giving voice to noisy acclamation, than in the sea, which was without incident, and in which she had no idea of drowning herself.

"If this hypothesis is reasonable, we have in the work of Praxiteles, Phryne as she was, doing exactly what she did. She is on the seashore. She is advancing toward and into the water. The shrinking together of the body, as suggested by the slight stoop, the forward bend of the shoulders, and other signs, suggest the momentary chill of nudity in the open air and also the intuitive modesty which would make such an ordeal a bit trying even for a courtesan. That she looks squarely to the left rather than straight ahead is perfectly natural in the circumstances. Presumably Phryne cared a great deal more for popular applause than for the appreciation of anything so intangible as Poseidon.

"The position of the right hand is significant. In obedience to the requirements of the Athenian law, Phryne wore on the nipple of the left breast the gold cap or thimble which was her safeguard and protection. To touch it sanctioned in her an act which in a woman not so safeguarded might have shocked the public taste even in Greece. Phryne had a right to stand nude before the people, if she wanted to, and this right was assured by her badge which, it may be assumed, had a very different significance as affecting social status in the fourth century, B. C., than it would have to-day. Her offer to rebuild at her own cost the walls of Thebes if the authorities would place thereon a bronze tablet inscribed: 'Destroyed by Alexander; Rebuilt by Phryne, the Courtesan,' would seem to show that she was not ashamed of her title, and presumably not of her profession. The modern point of view was probably not held in the early days referred to.

"The figure is that of a woman and not a goddess, since it is not idealized at all. The feet have the development in the great and three adjoining toes which comes from the training of the dancer, which Phryne was. The small toe is rudimentary—a peculiarity so pronounced as to be almost a deformity. Real feet are sometimes that way, idealized feet never. The ankles are relatively thick and strong, which they probably would be in one born near Thespiae, on the foot-hills of Mount Helicon. The legs are those of a young and athletic woman, but lack the exaggerated calf development resulting from the practice of the modern ballet. She falls below the ideal of perfection just in the details in which Phryne might have been expected to fall, for in early life she was presumably imperfectly nourished, since she had to gather capers for a living. Still she is wonderfully beautiful, and intensely human. That her lover should have preferred to model her as she was and not as another might have idealized her is natural enough. He could afford to do it without putting his reputation into contemporaneous jeopardy, whatever may have happened to it since.

"I at first thought it a statue of Aphrodite for which Phryne had posed. I now thing it not intended even to suggest Aphrodite, but that it commemorates in as faithful portraiture as the artist was capable of the incident of Phryne at Eleusis. My reasons for so thinking, if not convincing, at least have the advantages of being intelligible and consistent."

THE NEW BERLIN CATHEDRAL.

THE new Protestant cathedral in Berlin, built at a cost of £500,000, was dedicated on Monday in the presence of the German Emperor and Empress. The cathedral stands upon the site of an humbler Rococo edifice, which was erected between 1747 and 1750 by Frederick the Great from designs by Boumann, and restored in 1820 by the architect Schinkel for Frederick William III.; its dimensions were 290x134 feet.

So far back as 1871 the preparation of the plans was intrusted to the architect Geheimer Baurath J. C. Raschdorff, although the design has been officially described as the Emperor Frederick's own. The foundation-stone was laid by the present Emperor on June 17, 1894, so that the work has been executed in less than 11 years. In its erection Professor O. Raschdorff has been associated with his father. The site is close to the eastern arm of the Spree, on the island which contains the Royal Castle and the great edifices of the Royal Museum and National Galleries. The cathedral, which is built of Silesian gray sandstone in the style of the Italian Renaissance, covers an area of 61,740 square feet, or a little less than that occupied by York Minster (63,800 square feet). The central dome, with the cross which surmounts it, reaches a height of about 374 feet, or nearly 79 feet less than the height of the dome of St. Peter's in Rome, and over 9 feet more than the generally reputed height of St. Paul's in London. The total length of the building is over 374 feet, and its breadth 252 feet 6 inches. It is seated for 2,100 persons only.

The chief façade is treated in two orders, and the dome itself is flanked by four minor cupolas surmounting open square towers, the cornices of which are also supported on pilasters. Over the arch of the great portal is a colossal statue in bronze by Schafer representing Christ in the attitude of benediction. It is flanked at the corners of the minor towers and at the base of the second story by the figures of the Twelve Apostles, executed by well-known German sculptors.

In front of the façade a broad flight of steps leads to an entrance hall, connected by five doorways with the central portion of the church, which has the form of an irregular octagon. Facing the entrance is the semi-circular apse containing the altar, at the back of which are three rectangular windows, the stained glass of which represents the Crucifixion, the Nativity, and the Resurrection. In the northeastern of four semi-circular niches which are placed at diagonal points in this central edifice is the pulpit, and above the other three niches, supported by pillars of black Labrador marble, are stone balconies, which will respectively constitute pews for the Court, the Prussian Ministry and the choir. Above the last of these is the organ, built by Sauer, of Frankfort-on-the-Oder, and having 114 stops. Modern German

glass mosaic has been employed in the decoration of the interior of the cupola and elsewhere. The internal dome has a height of 242 feet 9 inches, and a diameter of 108 feet.

In this dome the mosaic work illustrates the Beatitudes in groups designed by the painter Anton von Werner, and there are also bas-reliefs illustrating Biblical scenes, the work of Otto Lessing. The altar, a plain table of white marble, supported by columns of colored marble, is surmounted by a reredos which exhibits gilt bronze figures of the Twelve Apostles after designs by Rauch. Both altar and reredos formerly stood in the old cathedral. Over the eight pillars which support the central portion of the edifice are the statues of the Reformers, Luther, Zwingli, Calvin and Melancthon, and of the four German sovereigns who promoted the Reformation, Duke Albrecht of Prussia, the Elector Joachim II. of Brandenburg, the Elector Frederick the Wise of Saxony, and the Landgrave Philip the Magnanimous of Hesse. To the south of the central area of the church and separated from it by folding-doors are the Church for Monuments and the Church for Baptisms and Marriages. From the former steps lead down to the crypt, which extends under the greater part of the building, and is lighted from without as well as by electric lamps. The so-called Church for Monuments is surrounded by five chapels, and is at present devoid of all ornament except the red marble columns which support the arched roof and the entrances to the chapels, the square pilasters of which are of yellow, red and green veined Mexican onyx marble. The side chapels will contain a projected monument to Prince Bismarck and the existing sarcophagi of King Frederick I. and his Queen and the Elector John Cicero.—*Building News.*

ILLUSTRATIONS

NORTH AISLE: ROGERS MEMORIAL CHURCH, FAIRHAVEN, MASS. MR. CHARLES BRIGHAM, ARCHITECT, BOSTON, MASS.

TOWER VESTIBULE IN THE SAME CHURCH.

DOORWAY BETWEEN SOUTH AISLE AND PORCH IN THE SAME CHURCH.

UNITED STATES POST OFFICE AND COURT HOUSE, ELIZABETH, N. C. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

UNITED STATES POST OFFICE, NATCHITOCHES, LA. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

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THE CHANCEL: ROGERS MEMORIAL CHURCH, FAIRHAVEN, MASS. MR. CHARLES BRIGHAM, ARCHITECT, BOSTON, MASS.

PULPIT AND ORGAN-CASE IN THE SAME CHURCH.

NOTES AND CLIPPINGS.

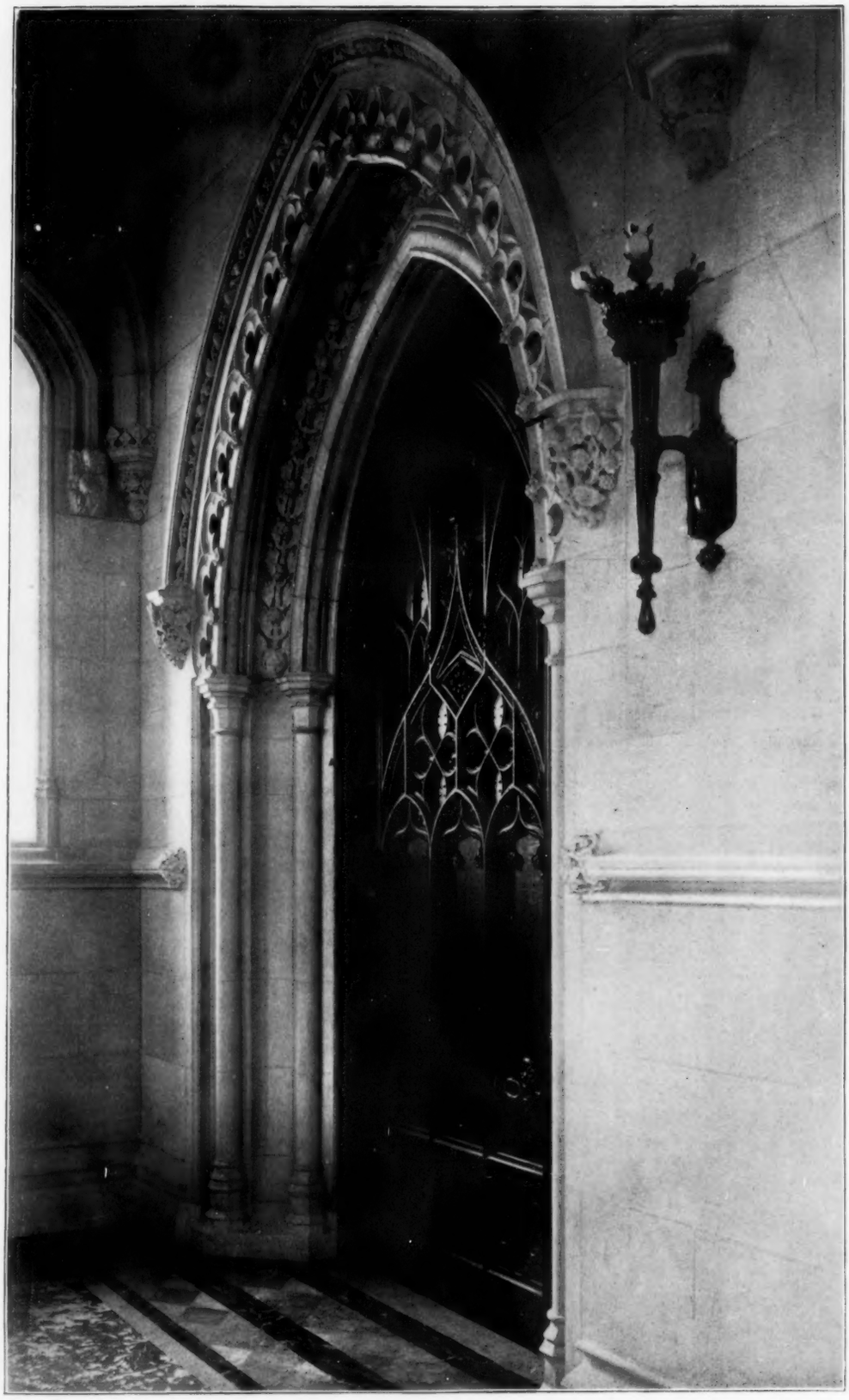
PERMESSI FOR STUDENTS IN ITALIAN ART GALLERIES.—The new regulations for the admission of artists and students gratis to the Italian galleries and excavations are very much more stringent than they have been hitherto, and it would be of great service if newspapers would draw the attention of their readers to them. In the case of artists and students, they should now submit their credentials to the Italian Ambassador in London, and on his certificate a pass will be granted. Until lately the certificate of the artist's consul was accepted. Now unless the artist has provided himself with a certificate from the Italian Ambassador in his native country he must make his application to the Ambassador accredited to the Court at Rome, who must first judge whether the applicant belongs to a "recognized academy," and if, in his judgment, he does, he forwards his application to the Minister of Education, who eventually sends a pass to the Embassy, whence it is usually forwarded to the Consulate of the city from which the application is made, and then by the consul transmitted to the applicant. The pass, when obtained, permits the bearer to measure, sketch and photograph, and to go in and out of the gallery or excavation, free, as often as he pleases. If he wishes to copy a picture, he must apply to the director of the gallery in which it is exhibited, who will inform him under what conditions he may work. Amateurs can obtain permission to photograph on application to the director of the gallery or excavation in question. The application must be on stamped paper of 60 c., which can be procured of any tobacconist in Italy.—*The Architect.*

ONE OF THE WONDERS OF JAPAN.—One of the wonders of Miyajima is an enormous structure called Thousand Mat Hall, a name which means that one thousand of the regulation 3 x 6 foot rice-straw mats are required to cover its floor. All rooms in Japan are measured in this way, instead of by feet, so in talking about houses one always says a "six-mat room" or "three-and-a-half-mat room," until one begins to think in divisions of 18 square feet. Thousand-Mat Hall was erected in the sixteenth century out of the wood of a single camphor tree, say the Japanese records, that are always so full of such perfectly wonderful details. If this be so, camphor trees must have grown very large in Japan in the sixteenth century, since the building rests upon a hundred or more piles, each a giant tree trunk in itself, beside which the roof is upheld by at least fifty pillars that were fifty forest monarchs once upon a time. Then there is a floor in the structure made of 18,000 square feet of cedar planks 1½ feet wide and 5 inches thick, so one must needs believe that its builder out-miracled the miracle of the loaves and the fishes, if Japan's sober records are to count for anything.—*Leslie's Weekly.*

LEGAL DAMAGE DUE TO LIGHTNING.—In the *Monthly Weather Review* of the United States Government there is a report of an interesting trial for damages due to lightning, at Dijon, France. In this case the court held that half the damage litigated over was due to lightning and the other half to the violence of the wind; and, further, that one-half should be borne by the insurance companies. The parties in interest then came together and adjusted the matter. Some years ago a United States Circuit Court of Appeals held that forecasts of local rain have not yet attained such commanding respect by reason of their accuracy as to justify the holding of shippers guilty of culpable negligence if they do not provide against damage by heavy rains when light local showers are predicted. "The case of local rains is different from that of storms of great violence, whose existence, course and time of arrival are publicly announced by signals which the master of a vessel is bound to observe."

With regard to the case on trial before the court at Dijon, the record shows that on June 30, 1901, at about 6 P. M., after a day of exceptional thunderstorms, an extremely violent wind occurred, producing great destruction. Besides the destruction due to the wind, many cases were found in which the damage was undoubtedly due to lightning. Public opinion and the local press attributed everything to the passage of a tornado. The work of destruction was accomplished in a few moments, and was followed by a heavy fall of hail over a large area, after which occurred an exceptionally heavy rain. The Administration of the Docks of Burgogne attributed a certain damage to lightning and demanded that the repairs should be made by the nine companies in which they were insured; but, on the contrary, the insurance companies maintained that the disaster was equally attributable to the wind, and that, according to their policies, they did not insure in any manner against damage done by "hurricanes or cyclones, tornadoes or any other meteorological or electrical phenomenon, except thunder and lightning."

In the trial before the judges the facts of the disaster, the wind and the lightning, were abundantly established. Then came a large mass of testimony relative to phenomena observed in Europe and America in connection with thunderstorms and tornadoes. Written or printed documents were presented from about twenty meteorologists, including Professors Alexander G. McAdie and Alfred J. Henry of the Weather Bureau. Considerable time was given to the study of analogous cases of destruction by other tornadoes, such as that of Monville, Aug. 19, 1845; St. Claude, Aug. 19, 1890, and an elaborate study was made of the destruction in the present case, Dijon, June 30, 1901, most of which was evidently due to wind. After three days of pleading the civil tribunal of Dijon finally rendered its judgment substantially in accord with the opinion of two of the three experts, namely, Galliot, Engineer-in-chief of Bridges and Roads; Pigeon, Professor in the Faculty of Sciences at the University of Dijon, and Julien, civil engineer in Paris.



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Charles Brigham, Architect.

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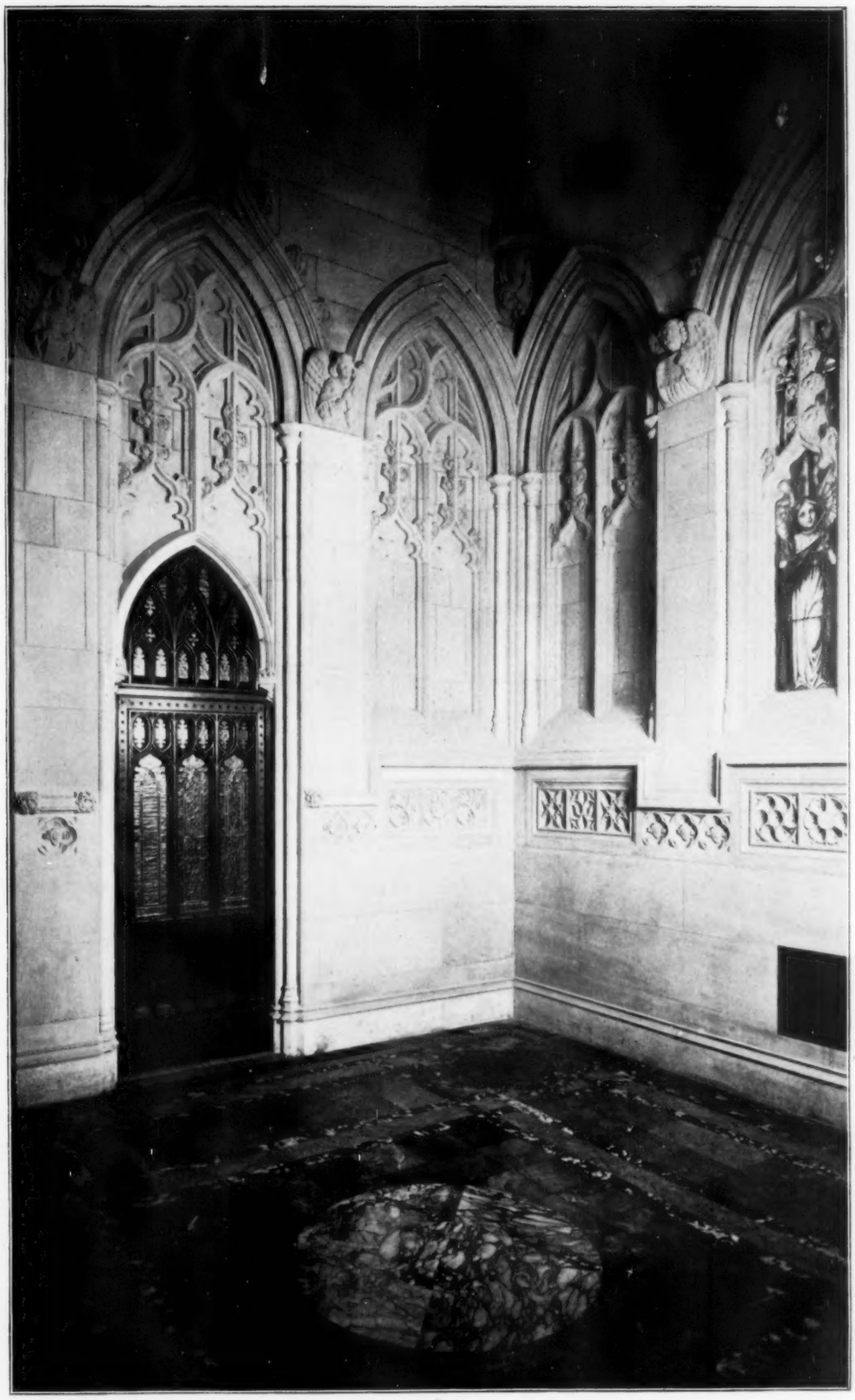

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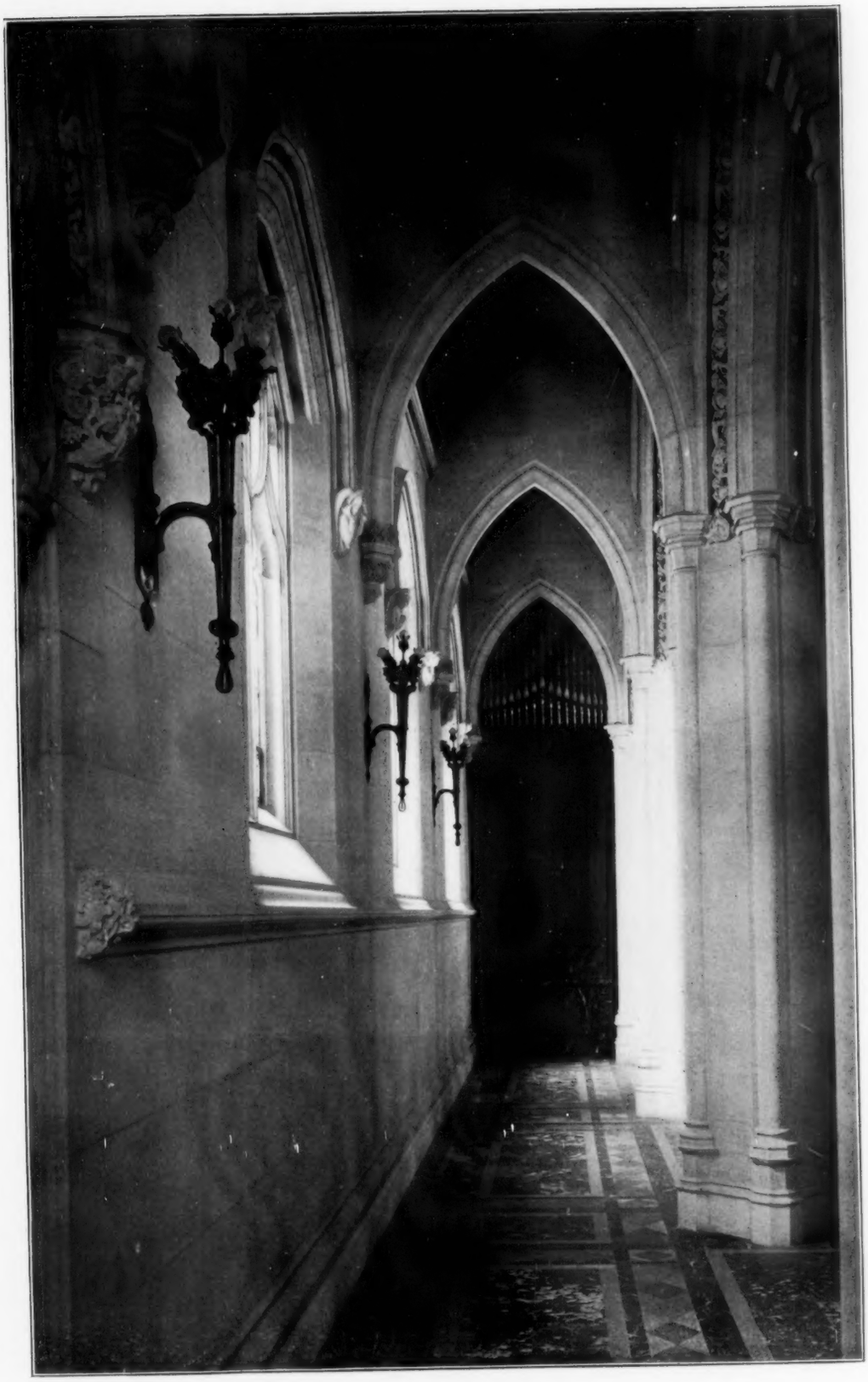

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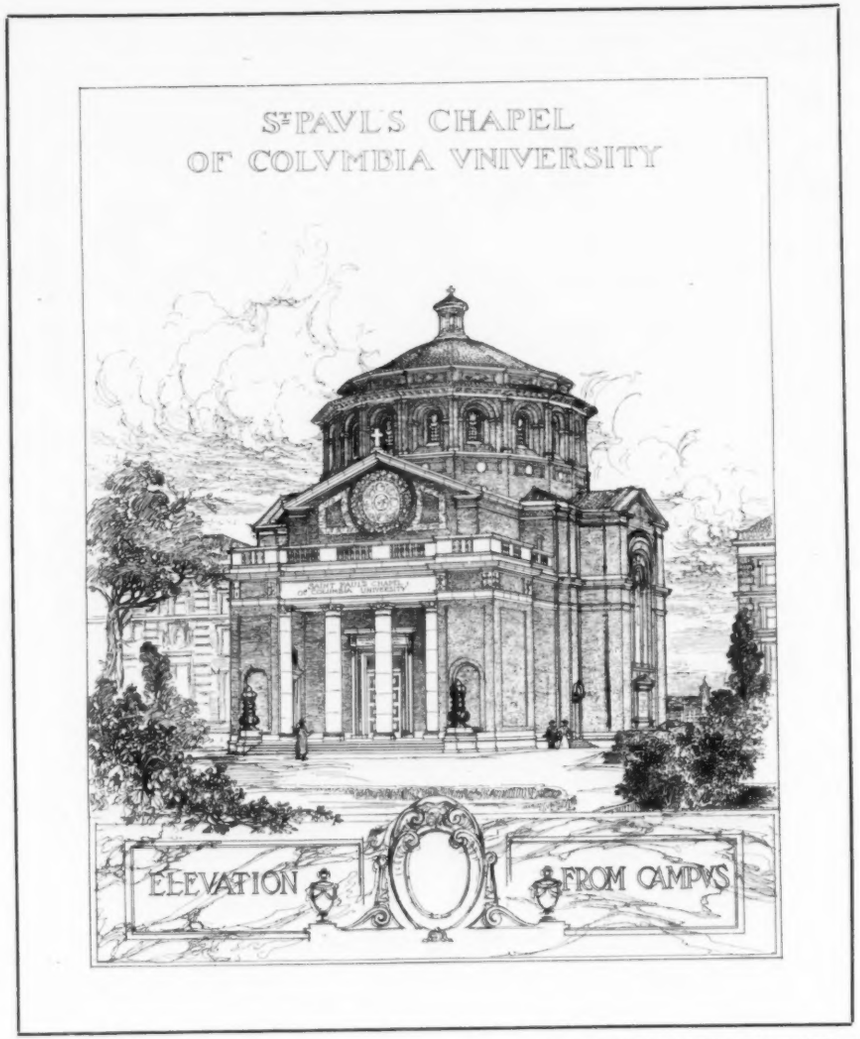

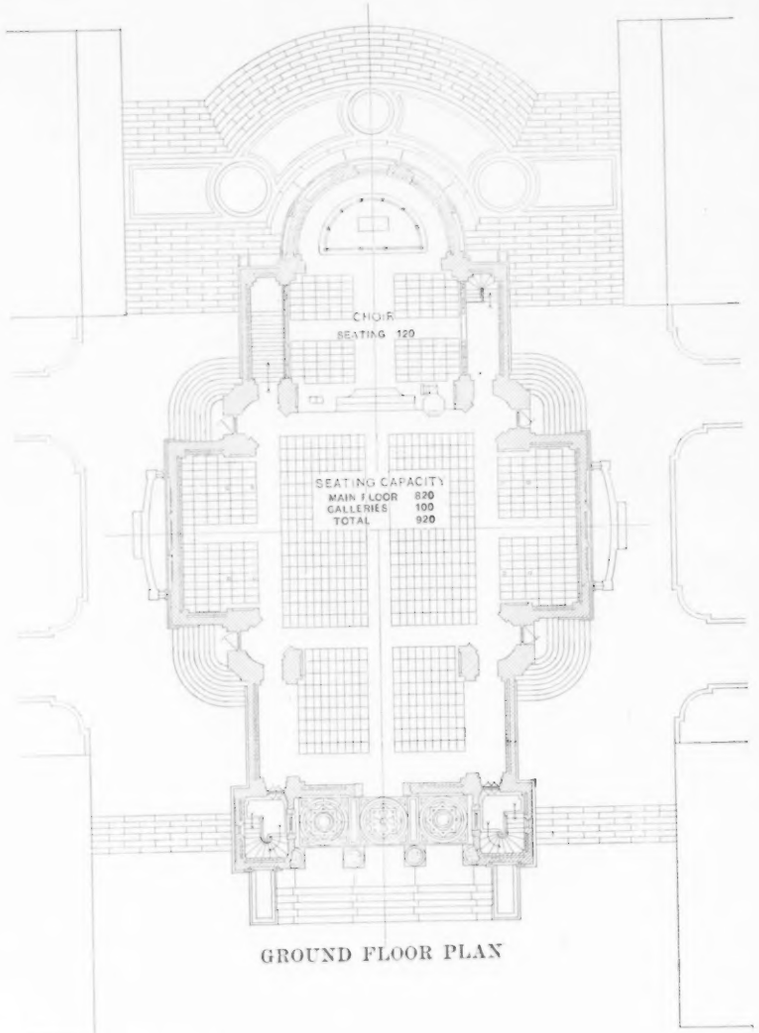

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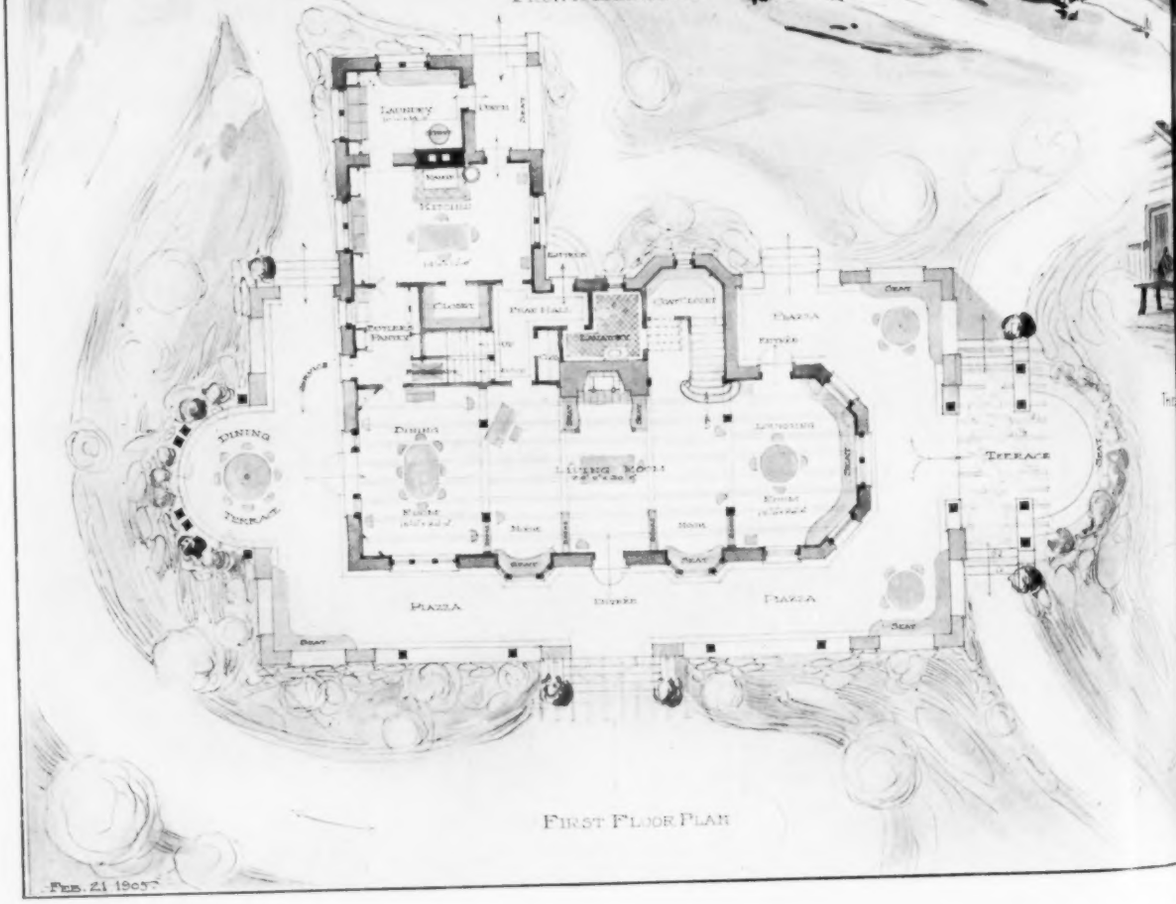
FRONT ELEVATION



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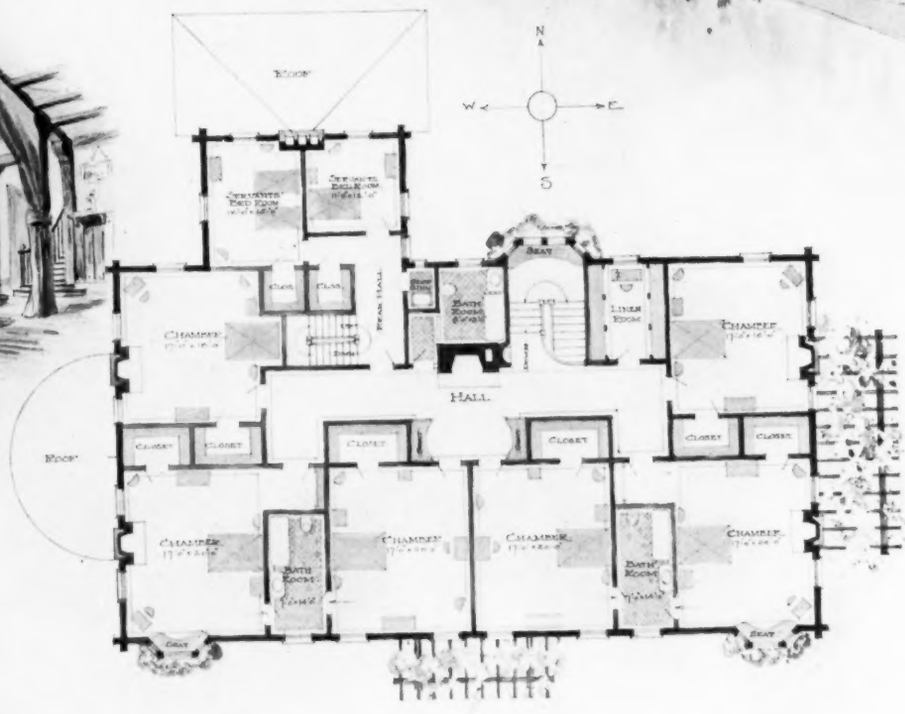

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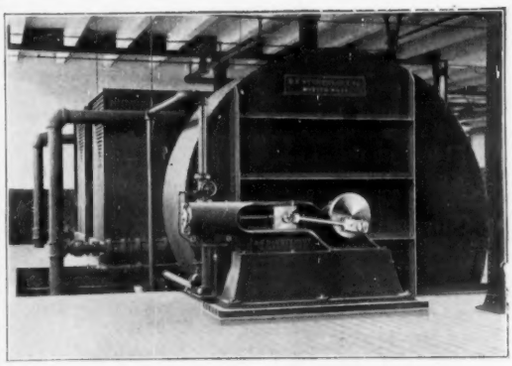

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Treasury Department, Office of the Supervising Architect, Washington, D. C., March 9, 1905.—Sealed proposals will be received at this office until 3 o'clock P. M., on the 8th day of May, 1905, and then opened, for the interior finish of the U. S. Custom House, New York, N. Y., in accordance with the drawings and specification, copies of which may be had on or after March 15, at this office or the office of the Architect, Cass Gilbert, 79 Wall Street, New York, N. Y., at the discretion of the Supervising Architect. Applications must be accompanied by a certified check for $250.00, which will be held at this office until the return of the drawings and specification. JAMES KNOX TAYLOR, Supervising Architect. (1525-1526)

Treasury Department, Office of the Supervising Architect, Washington, D. C., March 9, 1905.—Sealed proposals will be received at this office until 3 o'clock P. M., on the 9th day of May, 1905, and then opened, for mechanical equipment for the U. S. Custom House, New York, N. Y., in accordance with the drawings and specification, copies of which may be had on or after March 18, at this office or at the office of the Architect, Cass Gilbert, 79 Wall Street, New York, N. Y., at the discretion of the Supervising Architect. Applications must be accompanied by a certified check for $250.00, which will be held at this office until the return of the drawing and specifications. JAMES KNOX TAYLOR, Supervising Architect. (1525-1526)

BUILDING NEWS.

Continued from Page ix.

cost $225,000, for which plans have been prepared by J. B. Stewart.

Hoboken, N. J.—Work on the construction of the new terminal for the Lackawanna Railroad, at Hoboken, will be started at once. It is expected that the building will be completed and in operation within two years. The building will be absolutely fireproof. Its construction will be of steel and concrete throughout, the walls on the exterior being covered with copper-finished verdigris.

Homestead, Pa.—B. J. Stenger has plans for a business block, four stories high. Cost, $100,000.

Holyoke, Mass.—It is reported that Bishop Thos. D. Beaven, of Springfield, plans to erect several buildings at Brightside for educational purposes, including a trade school, the total cost to be about $100,000.

Homestead, Pa.—Plans are being drawn by a Homestead architect for a $100,000 apartment house to be erected by B. J. Stenger at the corner of West street and Eighth avenue.

Jones & Lash have a contract for the erection of 40 frame dwellings on Southern and Boggs avenues, Mount Washington, at an approximate cost of $100,000. The houses will be started immediately.

Indianapolis, Ind.—The Board of Trade is considering the erection of a $165,000 building on the present site.

Indianapolis, Ind.—It is stated that the legislature has appropriated money for the construction of buildings, as follows: "Southeastern Indiana Insane Hospital, $500,000; Industrial School for Girls, $235,000; Deaf and Dumb Institute, $250,000; Epileptic Hospital, $150,000."

Ithaca, N. Y.—Bids will be received until April 10 (extension of date) by E. L. Williams, treasurer Cornell University, for constructing the N. Y. State College of Agriculture at the University.

Jefferson City, Mo.—The Senate has passed a bill appropriating $199,000 to erect a new Supreme Court building.

Jersey City, N. J.—It is reported that the Perlmutters Dry Goods Co., 139 Newark Ave., will erect a new building at 175-177 Newark Ave. Plans not yet drawn.

Jersey City, N. J.—Architect Edward McDermott, of West Hoboken, has prepared plans for Henry Musterman, grocer, of 197 Bergenline Ave., Union Hill, for the erection of several 3-story brick store and apartment buildings, each 20x62 feet, on the southeast corner of Bergenline Ave. and 3d St., Union Hill. Cost, about $45,000.

Knoxville, Tenn.—W. J. Oliver has had plans prepared by Frank P. Milburn, Columbia, S. C., for a 10-story hotel which he proposes erecting at a cost of about $400,000.

Kansas City, Mo.—School bonds to the amount of $1,000,000 may be issued for new schools and for rebuilding old ones. W. E. Benson, Secy. Bd. Education.

Kansas City, Mo.—A 5-story storage building, 100x130 feet, will be erected on Broadway by the Central Storage & Warehouse Co. Cement and iron construction. J. P. Prescott, Gen. Mgr.

Plans have been drawn by Albert Turney, architect, Massachusetts building, for a fire station to be erected on Central St., between 10th and 11th Sts. Cost, $90,000.

Kittanning, Pa.—A high class school building will be erected at a cost of $30,000. Address president of Board of Education.

Little Falls, N. Y.—Several of the city's business men are back of a movement to establish a theatre at Little Falls, and are now corresponding with owners of New York playhouses who are desirous of building here. Two desirable sites are mentioned in the Girvan House barn and Beattie House properties, which are both centrally located.

Lafayette, Ind.—A total of $107,050 was appropriated for the State Soldiers' Home, and as soon as the weather permits work will begin. The widows' home, plans for which were drawn by a local architect two years ago, will be built this summer, at a cast of $50,000, including furnishings. The work of removing and enlarging the heating plant will begin with spring weather, the work costing $36,250.

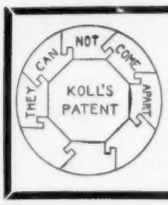
Lawrence, Kan.—A gymnasium is to be erected at the University of Kansas, to cost $100,000.

Manitowoc, Wis.—Manitowoc county is to have a new courthouse to replace the old structure, which has become inadequate. The structure will cost $150,000, and will be in the German renaissance style. It will be three stories in height, built of Bedford stone, and 100 x 160 feet in dimension. A large dome will surmount the building, its base being of solid stone and the upper part of copper and wire glass, giving light to the rotunda, corridors and hallways.

Morristown, Pa.—Ground was recently broken for the new edifice for St. Patrick's congregation, to cost $150,000.

Madisonville, Tex.—Mrs. J. Shapiro will erect a $25,000 residence to replace structure recently burned. Plans are being prepared.

Marion, Va.—Building plans and specifications for a new courthouse for Smyth county, Virginia, are on file at Marion, and



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at the office of Architect Frank P. Milburn, Columbia, S. C. Bids will be opened April 12, 1905. For particulars address J. P. Sheffey, Jr., secretary of building committee, Marion, Va.

MONTGOMERY, ALA.—The James E. Hickey Hotel Co. has been incorporated, and contract let to Nicholas Ittner, Atlanta, Ga., for erection of a $400,000 hotel, to be known as the New Exchange. Plans by W. F. Denny, Atlanta, Ga.

MIDDLETOWN, O.—Architects have finished the plans for the Sebald's new flat building. Cost, $40,000.

MORRIS PARK, L. I.—Albert Voelz has sold to the Evangelical Lutheran St. Paul's congregation, a plot 100 feet by 100 feet, on the east side of Stoothoff Ave., and 100 feet south of Stewart Ave. A new church edifice will be erected thereon.

MUNCIE, IND.—Jos. A. Goddard, a wholesale grocer of this city, has plans for a 5-story business block. Estimated cost, $50,000.

MADISON, WIS.—The Chicago & Northwestern Ry. Co. will erect a $300,000 station here, to replace present one.

MARIETTA, O.—Patton & Miller, Hartford building, have drawn plans for library building for Marietta College. To be built of brick and stone. Probable cost, $60,000.

MOBILE, ALA.—The Board of Revenue will issue $200,000 of bonds for building a new jail and for improvements at court house.

MYERSTOWN, PA.—New buildings at Albright College are planned. Site has been purchased and $100,000 will be expended.

MOUNT OLIVER, PA.—An addition will be built to Saint Joseph's Roman Catholic school building. Cost $80,000. Address architects, Ernst & Henselman, House Building.

NASHVILLE, TENN.—It is stated that the Fourth National Bank will erect a $150,000 building, and bids for construction will shortly be asked.

NASHVILLE, TENN.—The Union Bank & Trust Co. has purchased site at Union St. and Third Ave. at $75,000, on which to erect bank building. Plans are being prepared.

NEW ORLEANS, LA.—Harry Watcham and others will erect a 10-story hotel, to cost $750,000.

NEW YORK, N. Y.—We learn that J. A. Farley, 1 W. 46th St., has just purchased two 4-story dwellings at the southwest corner of Madison Ave. and 55th St. He intends to take down the old buildings and erect a 10-story steel frame apartment hotel.

NEW YORK, N. Y.—Neville & Bagge, 217 W. 125th St., have drawn plans for five 5-story flat buildings, 40x 83 feet, for the Jumel Realty & Construction Co., 620 W. 115th St., to be situated on the east side of Claremont Ave., 100 feet west of 125th St. Cost, $200,000.

Robert S. Smith, of R. Smith & Co., has purchased a 5-story building on lot 25x126 feet, running back to an alley which leads to 35th St. Mr. Smith is said to be negotiating for an adjoining lot with a view to erecting a 6-story business building, with a frontage of 50 feet.

NEW YORK, N. Y.—Plans have been drawn by C. B. Meyers, 1 Union Sq., for three 6-story flats, 40x87 feet, to be erected on 1st Ave. near 69th St., at a cost of $105,000. The Hamburger, Kleinfeld, Rothfeld Realty Co., 190 Bowery, owners.

George Fred. Pelham, 503 5th Ave., is designing a 6-story flat, 50x87 feet, for Henry S. Gamp, 1162 E. 169th St., to be erected on the east side of Courtlandt Ave., near 154th St., Bronx. Cost, $55,000.

NEW YORK, N. Y.—We learn that Chas. Efros has sold for Lowenfeld & Prager, to a builder, for improvement, eight lots on the south side of 152d St., 225 feet west of Broadway.

C. B. Meyers, 1 Union Sq., is making plans for 6-story, 30-family apartment buildings, 40x90 feet, for the Hamburger, Kleinfeld, Rothfeld Realty Co., 190 Bowery, to be erected on the northeast corner of 68th St. and 1st Ave. Cost, $100,000.

NEW YORK, N. Y.—Plans have been prepared by Bart & John P. Walther, 147 E. 125th St., for two 6-story flats, for Arthur W. Wall, 239 E. 126th St., to be erected on the north side of 158th St., near Elton Ave., Bronx, to cost $80,000.

The old buildings belonging to the Dewsnap estate, at the junction of William, South William and Stone Sts., have been sold to Charles S. Brown & Co., for $400,000. It is understood that the buyer will erect an office building on the site.

NEW YORK, N. Y.—The new Shayne building, to be erected in 42d St., will be 8 stories in height, costing $100,000. G. A. Varney & Co., 156 Fifth Ave., have the general contract for erection. Plans by A. S. Gottlieb, 156 Fifth Ave.

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NEW YORK, N. Y.—Kirby, Petit & Green, 23 West 34th St., are completing their plans for the new *Journal* building, which will occupy the site of the old Hotel Virginia, at Broadway, 58th St. and 8th Ave. No contracts for construction have yet been issued. Work of razing the old building will begin May 1st.

NEW YORK, N. Y.—C. E. Finlay, 1 West 34th St., of the East River Land Company, the corporation which has recently purchased 2,200 city lots in Astoria, states that his company has not yet decided upon the disposition to be made of the property. It lies along the East Shore of Hell Gate, opposite that portion of Manhattan between 96th and 104th Sts. It is suited for manufacturing, commercial and residential improvements.

NEW YORK, N. Y.—Plans have been filed for enlargement of the 12-story apartment hotel known as "Hotel Fourteen East Sixtieth." Two 12-story fireproof wings will be added. They are to have façades of brick, with trimmings of limestone and terra cotta. The first floor and basement of the original structure will also be remodeled. The building is owned by the Alpha Realty Company. Estimated cost of improvements, $220,000.

NEW YORK, N. Y.—Plans have been drawn by B. L. Gilbert and filed with the Building Superintendent for enlargement and remodelling of the Riding Club, at 7 East 58th St. The stables in the lower stories are to be enlarged and equipped with new fireproof stalls, the riding ring is to be reconstructed with floors of steel and concrete and the clubrooms rearranged. New elevators will be put in and an entirely new heating and plumbing plant installed. The projected improvements are to cost $50,000.

NEW HAVEN, CONN.—An architect is to be commissioned to prepare plans for an addition to the library at Yale University. Address John C. Schwab, New Haven.

NEW HAVEN, CONN.—Steps have been taken for the erection of a new dormitory at the Connecticut Agricultural College. Plans for a structure to house 66 men have been drawn.

NORFOLK, VA.—The erection of a $250,000 hall is under consideration.

OAKLAND, MD.—It is stated that bids are wanted April 12 by A. G. Ross, Clk., for erecting a 2-story brick and stone jail and sheriff's residence.

OBERLIN, O.—Plans have been drawn by Patton & Miller, Hartford building, Chicago, for library building, to be erected for Oberlin College. It will be of brick and stone, costing $125,000.

PADUCAH, KY.—H. H. Loving, president, and J. S. Bordeaux, general manager of the Home Purchasing Co., together with eastern capitalists, contemplate erecting a $100,000 office building at Paducah.

PHILADELPHIA, PA.—We learn that a $100,000 storage house and packing plant will be erected by Louis Burk, of Burk Brothers, at the corner of 3d St. and Girard Ave. It will be of fireproof construction, and exterior walls will be of Pompeiian brick and Indiana limestone.

PHILADELPHIA, PA.—It is reported that Winters Bros. will soon begin the erection of eighty-five dwellings and two stores in West Philadelphia for Thomas Marshall, involving an expenditure of $230,000. The houses will all be two stories high, of brick.

PHILADELPHIA, PA.—Carl P. Berger is taking bids for a theatre and hotel building to be erected at Franklin St. and Girard Ave.

PORT ARTHUR, TEX.—The city has completed arrangements for the erection of a 3-story industrial school building, 100x150 feet, to cost $65,000. Bids for the erection are being received by the building committee.

PITTSBURGH, PA.—Architect C. M. Bartberger, Westinghouse Building, has prepared plans for a school house in the 19th Ward. Ten rooms, fireproof, steam heat, gas and electric lights. Cost, $75,000.

PITTSBURGH, PA.—Architect W. A. Thomas, Park Building, is taking bids on three houses for Thomas Evans, Friendship Ave. Pressed brick, tile roof, hardwood finish. Cost, $60,000.

PITTSBURGH, PA.—The old Linden avenue school house and lot in the Twenty-second Ward has been sold, the reputed buyer a Fourth avenue real estate broker who takes the property for three business men who want residence sites. The lot is 177 x 120 feet and is located at the northwest corner of Linden avenue and Reynolds street. The old school house still stands on the site, but will be razed at once to make room for three houses to cost from $15,000 to $18,000 each.

PITTSBURGH, PA.—The Second Presbyterian Church will erect a $40,000 addition to their edifice in 8th street. Bids will be taken soon. S. Edward Young, pastor.

PITTSBURGH, PA.—The Schealey Farms Company will build 20 or more high class houses in Oakland. Cost, $20,000.

PITTSBURGH, PA.—M. Merrick, St. James street, will build two apartment houses to cover a lot 106 x 118 feet. Cost, $50,000.

PITTSBURGH, PA.—Boggs & Buhl, Allegheny, Pa., will erect a store building and warehouse. Eight stories, fireproof, elevators, store and office fixtures. $225,000. Architect Charles Bickel, 524 Penn Ave., has plans.

PITTSBURGH, PA.—Architect E. J. Schellentrager, Empire Building, Pittsburgh, has plans for a 15-story office building for the Commonwealth Realty and Construction Company. Fireproof, steel frame, freight and passenger elevators, Indiana limestone wall, Vermont marble interior, hardwood finish. Cost, $500,000.

PORTSMOUTH, VA.—Mrs. C. B. Ryan, of Portsmouth, wife of the General Manager of the Seaboard Air Line, has given $60,000 for the erection and equipment of four hospitals along the line of the railroad.

PORTLAND, ORE.—Whidden & Lewis, Concord building, have plans for a 4-story brick, stone and steel structure for the Concordia Club. Cost, $80,000.

PROVIDENCE, R. I.—A 5-story brick and stone addition will be made to the court house, after plans by Thornton & Thornton, 152 Waybosset St. Dimensions 104x 108 feet. Cost, $300,000.

ST. LOUIS, MO.—James J. Hannerty is having plans prepared by Barnett, Haynes & Barnett for the erection of a $100,000 theatre at Grand Ave. and Morgan Sts.

ST. LOUIS, MO.—The St. Nicholas Hotel

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property has been purchased by a syndicate at $700,000, and will be extensively improved at a cost of $300,000.

ST. LOUIS, MO.—A site has been purchased in Tower Grove Heights on which to erect a Catholic church. For further information address Archbishop John J. Glennon.

ST. LOUIS, MO.—The Jefferson Club intend erecting a $100,000 clubhouse at Grand and Laclede Aves.

ST. LOUIS, MO.—It is reported that the Employes' Hospital Association of the 'Frisco Line has purchased a site at Laclede and Euclid Aves., on which it is proposed to erect a hospital.

ST. PAUL, MINN.—Geo. E. Lennan has offered to give $2,500 to a fund to build a suitable public auditorium if 59 other men will donate equal amounts, or the total sum of $147,000 is realized for the purpose.

SALEM, MASS.—Plans have been drawn by George T. Adams, 448 Essex St., Lawrence, for proposed county court house. Estimated cost is $300,000. Wallace E Bates, Chn. County Comrs.

SAN FRANCISCO, CAL.—It is reported that the women's clubs of San Francisco will build a $1,000,000 clubhouse.

STEUBENVILLE, O.—Plans have been drawn by Christie & Webster for the high school which it is proposed erecting at a cost of $80,000.

SAN FRANCISCO, CAL.—The Governor has signed a bill appropriating $150,000 for the purchase of a site and the erection and equipment of buildings for the Normal School.

SYRACUSE, N. Y.—Gaggin & Gaggin, University block, have prepared plans for the new Y. M. C. A. building. It is stated that a committee will raise $212,000 for work; $100,000 additional will be given by Benjamin Tousey.

TRENTON, N. J.—Legislature has passed bill providing for a new wing to State prison. Cost, $250,000.

TROY, N. Y.—Whitfield & King, 160 Fifth Ave., New York, are drawing plans for a 4-story fireproof college building, 80x100 feet, to be erected here for the Van Rensselaer Polytechnic Institute.

TRENTON, N. J.—An appropriation of $250,000 has been made for the construction and equipment of additional buildings at the State Hospital for the Insane, at Trenton.

VINTON, IA.—It is reported that the Benton County Commissioners, will at their session in April, discuss the matter of receiving bids for the proposed court house; probable cost of structure, $90,000.

WASHINGTON, D. C.—Sealed proposals will be received at the office of the Purchasing Agent, Isthmian Canal Commission, Washington, D. C., until April 13, 1905, for furnishing 10,000 barrels Portland cement. Blanks and full information may be obtained from H. J. Gallagher, Major, U. S. Army, Purchasing Agent, Isthmian Canal Commission, Washington, D. C.

WASHINGTON, D. C.—It is reported that Sunderland Bros., Washington Savings Bank building, have purchased property in Fernwood on which to erect sixty residences at a total cost of $1,500,000.

WASHINGTON, D. C.—Thos. Walsh contemplates erecting an office building at 8th and G Sts.

WASHINGTON, D. C.—The Commission charged with the supervision of the construction of the new building for the House of Representatives has awarded the contract for the stonework to A. & B. Williams, of New York, at $1,031,000.

WASHINGTON, D. C.—Bids are asked until March 29 for wooden window frames, glazed sash and interior window trim for building for Army War College. Capt. John Stephen Sewell, U. S. Engrs.

WHITE PLAINS, N. Y.—The erection of a new $500,000 court house is under consideration. Competitive designs may be asked.

WEST PALM BEACH, FLA.—It is reported that J. C. Stowers is contemplating erection of a stone business block.

YOUNGSTOWN, O.—The Immaculate Conception congregation will build a $75,000 parochial school. William Ginther, Arcade building, Akron, architect.

THE Courthouse Commission of New Orleans invites plans from architects for a courthouse to be built in the City of New Orleans at a cost not to exceed eight hundred thousand dollars ($800,000); plans to be delivered to the Commission at its office, Room 1201, Hibernia Bank Building, not later than June 5, 1905. For the three plans selected by the Commission prizes will be awarded. The Commission reserves the right to reject any and all plans.

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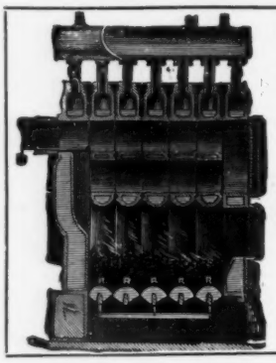

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NOTES AND CLIPPINGS

A Palpable Hit.—"We Japanese," the Japanese Minister at Paris is supposed to have said, "have for many generations sent to Europe exquisite lacquerwork, delicately carved figures, beautiful embroidery and many other commodities which showed how artistic we are; but the Europeans described us as 'uncivilized.' We have recently killed some 70,000 Russians, and every European nation is wondering at the high condition of civilization which we have attained."—*London Graphic.*

New Find of Statues at Karnak.—A discovery of some importance has recently been made during the preliminary work to the restoration to the great temple of Ammon, at Karnak, the Westminster Abbey of hundred-gated Thebes, which it has been proposed to restore. The eminent French Archæologist, M. Le Grain, while examining the foundations of the temple, found some eight massive statues and statuettes of bronze, granite, basalt, agate, beryl, marble, and alabaster. The discovery is of great importance in clearing up many points in Egyptian archæology heretofore in dispute.—*Building News.*

Protest Against the Law of Ancient Lights.—Do architects and others interested in building operations propose to take advantage of the recent far-reaching decision of the House of Lords in the Home and Colonial Stores case to stir up Parliament to deal with the much-abused privilege of "ancient lights" once and for all by putting it on a basis consistent with modern day requirements? says the *Liverpool Post.* It would be of great benefit to the community at large if some such step were taken. England is the only country in the world where the easement of ancient lights is approved and recognized by the law of the land. It is a safe estimate to say that, in nine cases out of ten, the ownership of such an easement is used merely as a means of blackmailing your neighbor when he contemplates a building improvement on his land. This ought not to be allowed. Anyone who buys a piece of land in Liverpool, either from the corporation or an individual, for the purpose of erecting upon it a block of offices which shall be a credit to the city, finds himself obliged to add a considerable sum to the actual cost of the building for the purpose of meeting extortionate claims by owners of adjoining ancient lights. This sort of thing ought to be stopped altogether.

Canova's Statue of Washington.—Another attempt is to be made to make something out of the fragments of Canova's statue of Washington that was partially destroyed by fire in Raleigh, N. C., more than fifty years ago, but so little remains that the task is almost hopeless. That the famous Canova made a marble statue of Washington has been almost forgotten. It was one of the last works of his life. In 1816 the Legislature of North Carolina appropriated $25,000 for the statue, which the sculptor finished in 1820. It was shipped from Italy to Wilmington, N. C., in the United States frigate Macedonian, and carted fifty miles to Raleigh by twelve teams of oxen. The architect of the Capitol advised that the pedestal should be placed on rollers, so that in case of fire the work might be saved. But the advice was ignored, and when the building took fire the weight of the statue, nearly twelve tons, made useless all efforts to save it. It was broken into a hundred pieces when the roof of the rotunda fell. An Englishman who offered for $500 to repair the statue took the head, which was comparatively uninjured, and disappeared with it. Heavy rewards were offered for its return, but to no purpose. The plaster model of the statue is in the museum of Possagno, Canova's native town. It shows Washington in Roman costume, seated, holding in one hand a stylus and in the other a tablet.—*N. Y. Evening Post.*

The Late Director of the Villa Medici.—We have, says the Paris correspondent of the *Builder,* to regret the loss of M. C.-J. Baptiste Eugene Guillaume, till recently the Director, for many years, of the École Française at the Villa Medici at Rome, who died there, at the age of 83. M. Guillaume was a pupil of Pradier. He obtained the Prix de Rome in 1845, and in 1855 obtained a "première medaille" at the Universal Exhibition of that year, as well as the cross of the Legion of Honor. In 1862 he became an Academician in the Section of Beaux-Arts, and a little later was elected a member of the Academie Française. In 1867 he obtained the Medal of Honor at the Salon, and was promoted "Officier" of the Legion of Honor, becoming "Commandeur" in 1875, "Grand Officier" in 1889, and "Grand Croix" in 1900. In 1874 he was appointed Director of the Villa Medici, where M. Carolus-Duran has just succeeded him after his retirement on account of age. His first important works, "Anacréon," "Les Gracques," and "Le Faucheur," are in the Luxembourg. Among his other works may be mentioned the bas-reliefs in the Church of Ste. Clothilde, illustrating the life of that saint; the statue of Claude Bernard which stands in front of the Collège de France, that of Thiers at Versailles, and those of Philippe de Girard (Avignon) and Rameau (Dijon). M. Guillaume united in himself very various qualities and talents which gave him rather a special place in the world of contemporary French art. He was also an excellent instructor, in which capacity he has influenced many of the most prominent sculptors of the day.

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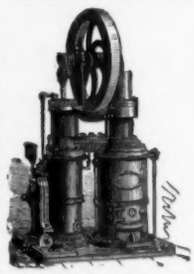

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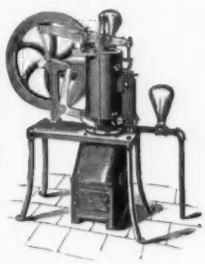

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